Facility Expansion Project
Plan Approval Application

B. Braun Medical, Inc. – Allentown, PA

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Submitted by:

B. Braun Medical, Inc.
Allentown Facility
901 Marcon Blvd.
Allentown, PA 18109

Submitted to:

Pennsylvania Department of Environmental Protection
Bureau of Air Quality
Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 18711-0790

ALL4 Contact Information: info@all4inc.com | 610.933.5246 | www.all4inc.com

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1. INTRODUCTION

B. Braun Medical, Inc. (B. Braun) operates a surgical and medical instrument apparatus manufacturing facility located at 901 Marcon Blvd. in Allentown, Pennsylvania (Allentown Facility or Facility). The location of the site is shown in Figure 1-1 on a section of the United States Geological Survey (USGS) quadrangle map for the area. The Allentown Facility is part of the international healthcare corporation that employs over 50,000 people worldwide. The Facility currently operates under Pennsylvania Department of Environmental Protection (PADEP) Title V Operating Permit (TVOP) No. 39-00055. B. Braun is submitting a Plan Approval Application (PAA) to PADEP for a proposed expansion of the existing Facility (Expansion Project).

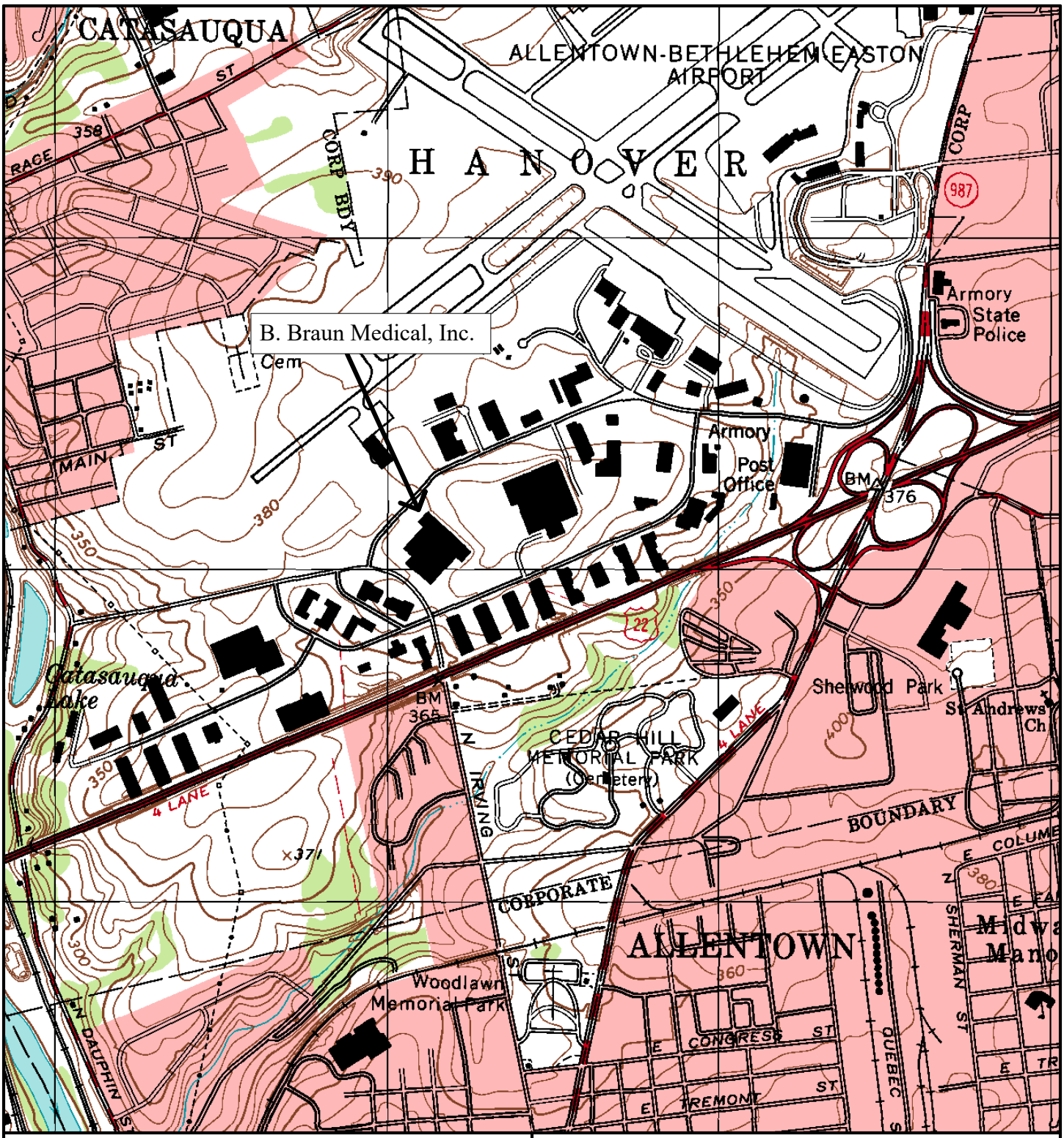
1.1 PROJECT OVERVIEW

B. Braun manufactures various surgical and medical equipment at the Allentown Facility. Due to market demand and continued business growth, B. Braun is proposing to increase manufacturing operations at the Facility. In order to do so, B. Braun will construct a new building at the current site that will include various operations such as Extrusion Operations, Injection Molding (IM) Operations, Mold Shop Operations, ancillary equipment, and emergency equipment. The proposed emissions units are discussed in detail in Section 2. The anticipated construction start date is March 2019.

1.2 APPLICATION ORGANIZATION

This PAA has been prepared to provide PADEP with the information necessary to review and approve the project proposed herein and is organized in the following manner:

- **Section 1 – Introduction**: Provides an overview of the Expansion Project proposed herein and outlines the remainder of the application.
- **Section 2 – Project Description**: Provides a general description of the Expansion Project and emissions units.



Based on USGS 1:24,000 topographical map for Catasauqua, PA, 2001.

B. Braun Medical, Inc.
Allentown, Pennsylvania

Figure 1-1
Facility Location Map

- **Section 3 – Emissions Inventory**: Describes the approach to calculating potential emissions associated with each emissions unit proposed herein.

- **Section 4 – Regulatory Analysis**: Addresses Federal and State regulations that are potentially applicable to the Expansion Project.

The appendices to this application are organized as follows:

- **Appendix A** – PADEP Application Forms
- **Appendix B** – Emissions Inventory
- **Appendix C** – Manufacturer Specification Sheets
- **Appendix D** – Municipal Notification Letters

2. PROJECT DESCRIPTION

B. Braun has prepared this PAA to request approval for the installation and operation of various emissions units as part of the Expansion Project. The emissions units proposed as part of the Expansion Project are discussed below.

2.1 EXTRUSION OPERATIONS

B. Braun manufactures intravenous (IV) tubing of varying length, diameter, and opacity using nine existing extrusion lines at the Facility. As part of the Expansion Project, B. Braun is proposing to install and operate additional extrusion lines equal to the current capacity. The proposed Extrusion Operations are insignificant sources of emissions at the Facility [i.e., potential emissions are less than one ton of volatile organic compounds (VOC) and are thus de minimis per 25 Pa. Code §129.449(d)(5)].

During the Extrusion Operations process, pelletized resins from varying locations (i.e., silos, gaylords, bags, etc.) are transferred through a series of pressurized hoses to the extrusion lines. Once the resins are transferred from storage to the extrusion lines they are funneled into a barrel with a diameter that tapers with length. The screw within the barrel presses the pelletized resins against the barrel wall creating a shear force that heats the resins into a malleable material. The malleable plastic material is directed from the barrel into a die cast and mandrel to form the hollow cylindrical shape of an IV tube. Once shaped, the IV tube opacity or "frosting" is altered by applying varying amounts of forced cold-air to the IV tube. Following the IV tube frosting, the IV tube is cooled via a water bath and dried. Depending upon the end use of the IV tube, the IV tubes are either wound into a coil for delivery or cut into the desired lengths.

2.2 INJECTION MOLDING OPERATIONS

B. Braun manufactures various plastic medical parts using 100 existing IM machines at the Facility. As part of the Expansion Project, B. Braun is proposing to install and operate 40 new IM machines. The proposed IM Operations are insignificant sources of emissions [i.e., potential emissions are less than one ton of VOC and are thus de minimis per 25 Pa. Code §129.449(d)(5)].

During the IM process, plastic medical parts are produced by heating various resins and injecting the molten resins into molds via a "screw". Prior to switching to a new mold or utilizing a different resin within an IM machine, the system is purged (i.e., cleaned) with a coarse resin to remove any remaining resin from the IM machine. In addition to the typical purge events, the screw of each injection molding machine is removed periodically for cleaning and maintenance. Note, only during the IM machine purges and periodic screw cleanings are emissions from IM Operations vented to the atmosphere. At all other times, the process is a closed system that does not exhaust to the atmosphere.

2.3 MOLD SHOP OPERATIONS

B. Braun is proposing to install and operate a small Mold Shop as part of the Expansion Project. Mold Shop Operations will include medical device mold maintenance, repair, and storage. In addition, the Mold Shop will also contain an electric water evaporator which is not a source of emissions. Repair operations in the Mold Shop may include metal grinding operations. Grinding-related particulate emissions will be captured and controlled via a fabric filter dust collector. The proposed Mold Shop Operations are an insignificant source of emissions and, per 25 Pa. Code §127.14(a)(8), Exemption No. 37 (Page 8) of PADEP's Air Quality Permit Exemption Document No. 275-2101-003, sources that exhaust to a fabric filter dust collector and have pre-control particulate loading below the 25 Pa. Code §123.13 limit (i.e., 0.04 gr/dscf) are exempt from air quality permitting requirements. Pre-control particulate loading from the Mold Shop Operations is below the 25 Pa. Code §123.13 limit of 0.04 gr/dscf. Therefore, the proposed Mold Shop Operations are exempt from permitting requirements per 25 Pa. Code §127.14(a)(8).

2.4 FIRE PUMP

B. Braun is proposing to install a fire pump at the new manufacturing building as part of the Expansion Project. The fire pump will be a 282 brake horsepower (bhp) Clarke Model JU6H-UFADNG fire pump powered by a John Deere 6068 Series Power Tech E (or equivalent) diesel-fired compression ignition (CI) reciprocating internal combustion engine (RICE). The engine has been certified as compliant with U.S. Environmental Protection Agency (U.S. EPA) Tier 3 emissions standards codified at 40 CFR §89.112. The engine will burn ultra-low sulfur diesel fuel

and will operate for emergency purposes (or maintenance and testing) only, and for no longer than 500 hours per year on a 12-month rolling basis. A 359-gallon diesel fuel tank will be installed to support the proposed fire pump.

2.5 EMERGENCY GENERATOR

B. Braun is proposing to install an emergency generator (EGen) at the new manufacturing building as part of the Expansion Project. The 750 kilowatt (kW) Cummins EGen will be powered by a Cummins Model GTA50 (or equivalent) spark ignition (SI) RICE. The engine has been certified as compliant with emissions standards codified at 40 CFR Part 60, Subpart JJJJ. The engine will burn natural gas and will operate for emergency purposes (or maintenance and testing) only, and for no longer than 500 hours per year on a 12-month rolling basis.

2.6 BOILERS

B. Braun is proposing to install two 21.0 million British thermal units per hour (MMBtu/hr) Bryan Boilers Model RW2100-W (or equivalent) natural gas-fired water boilers as part of the Expansion Project. Typical Facility operations will only require the use of one boiler, with the second boiler being used in times of peak load or as a backup to the first boiler.

2.7 COOLING TOWERS

B. Braun is proposing to install three 2,849 gallon per minute (GPM) cooling towers at the new manufacturing building as part of the Expansion Project. The third unit will be installed but reserved for redundancy and will not be operational at the same time as the first and second units. The proposed cooling towers will be equipped with water-side economizers and will be operational throughout the year.

2.8 COMBUSTION UNITS

Various small natural gas-fired humidifiers and hot water heaters will also be installed at the new manufacturing building as part of the Expansion Project. Seventeen humidifiers will be installed, each with an average heat input of 0.2 MMBtu/hr. B. Braun anticipates operating the humidifiers during the winter months for product quality requirements. Three 0.6 MMBtu/hr and one 0.3

MMBtu/hr hot water heaters are also proposed as part of the Expansion Project, as well as two 0.83 MMBtu/hr dryers. Each small combustion unit is rated at less than 2.5 MMBtu/hr and is therefore exempt from Plan Approval requirements per 25 Pa. Code §127.14(a)(2). The combustion units are included within this PAA and emissions calculations for completeness purposes only.

3. EMISSIONS INVENTORY

The following subsections present the methodology used to calculate potential emissions associated with the emissions units proposed as part of the Expansion Project.

3.1 EXTRUSION OPERATIONS EMISSIONS

B. Braun evaluated the VOC and hazardous air pollutant (HAP) content of materials utilized within the Extrusion Operations to determine the potential to emit (PTE). The resin safety data sheets (SDS) identify the presence of diethylhexyl phthalate (DEHP), which is both a VOC and a HAP. However, DEHP is expected to be retained in the product as the material properties are important to the functionality of the final product. The quantity of DEHP expected to remain in the material, and not be released to atmosphere, was not available from the resin manufacturer. Therefore, B. Braun completed an analytical test to determine the amount of VOC and HAP expected to be released to atmosphere during Extrusion Operations. During the test, B. Braun measured the amount of DEHP contained within the resins prior to extrusion and the amount of DEHP retained within the final IV tubing. Per the test report, the difference in measured DEHP content was insignificant (i.e., less than ± 0.2% for the three tests), which can be attributed to experimental error and indicates that all of the DEHP within the resin is retained within the IV tube extruded from the resin. Therefore, potential emissions have not been calculated for Extrusion Operations. Because Extrusion Operations are an insignificant source, a PAA form for this source has not been included within Appendix A.

3.2 INJECTION MOLDING OPERATIONS EMISSIONS

Potential emissions from IM Operations were calculated based upon site specific information. During typical operation, IM emissions are not vented to atmosphere. Emissions are vented to atmosphere only during IM machine purges and screw cleanings. B. Braun evaluated the PTE of VOC to the atmosphere during a purge event based on the VOC content of each material utilized within IM Operations. B. Braun conservatively assumed the maximum number of purges per day (i.e., six purges per day) and the maximum amount of resin utilized during each purge event (i.e., 10 pounds per purge) was vented to atmosphere. The resin with the highest VOC content was

utilized for all emissions calculations in order to define the highest potential VOC emissions for this operation. B. Braun also conservatively assumed that the purge resin is utilized to clean the injection molding machine during every purge event. Table B-1 of Appendix B presents the potential emissions from each resin during a worst-case purge scenario. Because IM Operations are an insignificant source, a PAA form for this source has not been included within Appendix A.

3.3 MOLD SHOP OPERATIONS EMISSIONS

B. Braun evaluated the potential particulate matter (PM), PM less than 10 microns (PM_{10}), and PM less than 2.5 microns ($PM_{2.5}$) emitted to the atmosphere from the Mold Shop Operations fabric filter dust collector. The uncontrolled emissions from the Mold Shop Operations are below the 25 Pa. Code §123.13 threshold, as discussed in Section 2.3. Therefore, potential emissions have not been included herein for Mold Shop Operations. Because Mold Shop Operations are an insignificant source, a PAA form for this source has not been included within Appendix A.

3.4 FIRE PUMP EMISSIONS

Emissions from the fire pump were calculated using emissions standards from 40 CFR Part 60, Subpart IIII and emissions factors from U.S. EPA AP-42 Chapter 3, Section 3, Tables 3.3-1 and 3.3-2. Filterable PM_{10} and $PM_{2.5}$ were assumed to be equivalent to filterable PM. Annual emissions were calculated assuming the fire pump operates 500 hours per year. Potential emissions from the fire pump are displayed in Table B-2 of Appendix B.

3.5 EGEN EMISSIONS

Emissions from the EGen were calculated using emissions standards from 40 CFR Part 60, Subpart JJJJ and emissions factors from U.S. EPA AP-42 Chapter 3, Section 2, Table 3.2-1. It was assumed that the PM emissions factor is only filterable particulate. $PM_{2.5}$ and PM_{10} emissions factors were assumed to be both filterable and condensable particulate. Annual emissions were calculated assuming the emergency generator operates 500 hours per year. Potential emissions from the EGen are displayed in Table B-3 of Appendix B.

3.6 BOILERS AND COMBUSTION UNITS EMISSIONS

Emissions from the boilers and small combustion equipment (i.e., humidifiers and hot water heaters) were calculated using emissions factors from U.S. EPA AP-42 Chapter 1, Section 4, Tables 1.4-1 through 4. Emissions from the boilers and small combustion equipment were calculated assuming 8,760 hours of operation per year. Though the small combustion equipment are exempt from Plan Approval requirements per 25 Pa. Code §127.14(a)(2), emissions were included for completeness purposes. Potential emissions from the two boilers are displayed in Table B-4 of Appendix B and potential emissions from the small combustion equipment are displayed in Table B-5 of Appendix B.

3.7 COOLING TOWER EMISSIONS

Potential emissions from the three proposed cooling towers were calculated using U.S. EPA AP-42 Chapter 13, Section 4, Table 13.4-1. Because the third cell is installed for redundancy, it will not be operational at the same time as the first and second cells. Therefore, potential emissions are based on operating two units. It was assumed that PM is equivalent to PM_{10}, which is in turn equivalent to $PM_{2.5}$. Annual emissions were calculated assuming the cooling towers operate 8,760 hours per year. Potential emissions from the cooling towers are displayed in Table B-6 of Appendix B.

3.8 TOTAL PROPOSED EMISSIONS

Table B-7 of Appendix B presents the total project-related potential emissions, and as presented, the Facility will not be subject to permitting under Nonattainment New Source Review (NNSR) permitting requirements or Federal Prevention of Significant Deterioration (PSD) permitting requirements. A complete regulatory discussion related to the Expansion Project is presented in Section 4.

4. REGULATORY ANALYSIS

B. Braun has reviewed the Federal and Commonwealth of Pennsylvania air quality regulations to determine which regulations potentially apply to the proposed project. This section summarizes potentially applicable air quality requirements.

4.1 FEDERAL REGULATIONS

For the purpose of this PAA, potentially applicable Federal regulations are defined as:

- Standards of Performance for New Stationary Sources (NSPS)
- National Emission Standards for Hazardous Air Pollutants (NESHAP)
- New Source Review (NSR)

A discussion of each specific Federal requirement is provided in the following subsections.

4.1.1 Standards of Performance for New Stationary Sources

U.S. EPA has promulgated standards of performance for new, modified, or reconstructed sources of air pollution at 40 CFR Part 60, also referred to as NSPS. Potentially applicable NSPS are discussed below.

4.1.1.1 40 CFR Part 60, Subpart D

40 CFR Part 60, Subpart D – Standards of Performance for Fossil-Fuel-Fired Steam Generators applies to fossil-fuel-fired steam generating units of more than 250 MMBtu/hr heat input rate. The proposed boilers at the Facility each have a capacity of 21.0 MMBtu/hr and thus are not subject to 40 CFR Part 60, Subpart D.

4.1.1.2 40 CFR Part 60, Subpart Da

40 CFR Part 60, Subpart Da – Standards of Performance for Electric Utility Steam Generating Units applies to electric utility steam generating units of more than 250 MMBtu/hr heat input rate for which construction, modification, or reconstruction commenced after September 18, 1978. The

proposed boilers at the Facility are not electric utility steam generating units and each have a capacity of 21.0 MMBtu/hr, and thus are not subject to 40 CFR Part 60, Subpart Da.

4.1.1.3 40 CFR Part 60, Subpart Db

40 CFR Part 60, Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units applies to steam generating units that commenced construction, modification, or reconstruction after June 19, 1984 and that have a heat input capacity greater than 100 MMBtu/hr. The proposed boilers at the Facility each have a capacity of 21.0 MMBtu/hr and thus are not subject to 40 CFR Part 60, Subpart Db.

4.1.1.4 40 CFR Part 60, Subpart Dc

40 CFR Part 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units applies to steam generating units that commenced construction, modification, or reconstruction after June 9, 1989 and that have a heat input capacity greater than 10 MMBtu/hr and less than 100 MMBtu/hr. The proposed boilers at the Facility each have a capacity of 21.0 MMBtu/hr and commenced construction after June 9, 1989, and thus are subject to 40 CFR Part 60, Subpart Dc.

40 CFR Part 60, Subpart Dc establishes emissions standards for SO_2 and PM for coal-fired boilers. The proposed boilers at the Facility will fire only natural gas and thus are not subject to emissions standards in 40 CFR Part 60, Subpart Dc. In accordance with 40 CFR §60.48c(a) and 40 CFR §60.7, B. Braun must submit initial notifications of construction and actual startup to U.S. EPA and PADEP for the two proposed boilers. Additionally, B. Braun must comply with the recordkeeping and reporting requirements of 40 CFR §60.48c(g) and (i). B. Braun will comply with these requirements.

4.1.1.5 40 CFR Part 60, Subpart Kb

40 CFR Part 60, Subpart Kb applies to the storage of volatile organic liquids (VOLs) in vessels with a capacity greater than or equal to 19,813 gallons that were constructed after July 23, 1984.

The proposed diesel fuel storage tank will have a capacity of 359 gallons and thus is not subject to 40 CFR Part 60, Subpart Kb.

4.1.1.6 40 CFR Part 60, Subpart IIII

40 CFR Part 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines applies to manufacturers, owners, and operators of CI ICE. Applicability to 40 CFR Part 60, Subpart IIII is established in 40 CFR §60.4200 wherein owners and operators are deemed affected if construction of the CI ICE commenced after July 11, 2005 and the CI ICE was manufactured after April 1, 2006 and is not a fire pump engine, or is manufactured as a certified Nation Fire Protection Association (NFPA) fire pump engine after July 1, 2006. The proposed fire pump engine was constructed after July 1, 2006 and is a certified NFPA fire pump engine. Therefore, the proposed fire pump engine is subject to the requirements of 40 CFR Part 60, Subpart IIII.

In accordance with 40 CFR §60.4205(c), owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emissions standards in Table 4 of 40 CFR Part 60 for the life of the engine pursuant to 40 CFR §60.4206, Subpart IIII. The proposed fire pump engine will comply with the applicable emissions standards. The manufacturer-provided certification sheet indicating compliance with 40 CFR Part 60, Subpart IIII emissions standards is included in Appendix C.

In accordance with 40 CFR §60.4207, the fire pump engine will fire diesel fuel that meets the requirements of 40 CFR §80.510(b). Pursuant to 40 CFR §60.4209(a), the fire pump will be equipped with a non-resettable hour meter. 40 CFR §60.4211(a) states that owners and operators that must comply with the emissions standards specified in 40 CFR Part 60, Subpart IIII, must operate and maintain the stationary CI ICE according to the manufacturer's written instructions. Owners and operators may only change those settings that are permitted by the manufacturer. B. Braun will comply with these requirements.

In accordance with 40 CFR §60.4211(f), B. Braun must limit maintenance checks and readiness tests of the fire pump engine to less than 100 hours per year, and must limit non-emergency

operations to 50 hours per year of the 100 hours per year. Pursuant to 40 CFR §60.4214(b), B. Braun must keep records of the operation of the fire pump engine in emergency and non-emergency services that are recorded through the non-resettable hour meter. B. Braun will comply with these requirements.

4.1.1.7 40 CFR Part 60, Subpart JJJJ

40 CFR Part 60, Subpart JJJJ – Standard of Performance for Stationary Spark Ignition Internal Combustion Engines applies to manufacturers, owners, and operators of SI ICE. Applicability to 40 CFR Part 60, Subpart JJJJ is established in 40 CFR §60.4230. The proposed EGen engine at the Facility is subject to 40 CFR Part 60, Subpart JJJJ per 40 CFR §60.4230(a)(4)(ii) because the 750 kW (1,005 hp) SI ICE commenced construction after June 12, 2006 and the stationary SI ICE was manufactured on or after January 1, 2008.

In accordance with 40 CFR §60.4233(e), the EGen will comply with the emissions standards in Table 1 of 40 CFR Part 60, Subpart JJJJ for the entire life of the engine pursuant to 40 CFR §60.4234. Pursuant to 40 CFR §60.4237, the EGen engine will be equipped with a non-resettable hour meter. 40 CFR §60.4243 states that owners and operators that must comply with the emissions standards specified in 40 CFR §60.4233(e) must purchase an engine certified according to procedures specified in 40 CFR Part 60, Subpart JJJJ and demonstrate compliance by operating and maintaining the stationary SI ICE according to the manufacturer's emission-related written instructions. The proposed EGen engine is certified compliant with 40 CFR Part 60, Subpart JJJJ emissions standards and B. Braun will operate and maintain the EGen engine according to the manufacturer's instructions.

Pursuant to §60.4243(d), B. Braun must limit maintenance checks and readiness tests of the EGen engine to less than 100 hours per year, and must limit non-emergency operation to 50 hours per year of the 100 hours per year. Pursuant to §60.4245(a), B. Braun must keep records of all notifications submitted to comply with 40 CFR Part 60, Subpart JJJJ, documentation supporting any notification, maintenance conducted on the engine, and documentation from the manufacturer that the engine is certified to meet the applicable emission standards. In accordance with 40 CFR

§60.4245(b), B. Braun must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. B. Braun will comply with these requirements.

4.1.2 National Emission Standards for Hazardous Air Pollutants

U.S. EPA has promulgated NESHAPs at 40 CFR Parts 61 and 63. NESHAPs promulgated prior to the Clean Air Act Amendments (CAAA) of 1990, found in 40 CFR Part 61, apply to specific compounds emitted from specific processes. There are no 40 CFR Part 61 NESHAP requirements that apply to the proposed project. Pursuant to the CAAA of 1990, process-specific NESHAP are promulgated in 40 CFR Part 63. NESHAP rules promulgated under 40 CFR Part 63, commonly referred to as Maximum Achievable Control Technology (MACT) standards, apply to source categories that are considered area sources or major sources of HAP. A major source of HAP is defined as a source with the facility-wide PTE any single HAP at a rate equal to 10 tons per year (tpy) or more, or with the facility-wide PTE total HAP at a rate equal to 25 tpy or more. The Facility is an area source of HAP. Potentially applicable NESHAPs are discussed below.

4.1.2.1 40 CFR Part 63, Subpart Q

40 CFR Part 63, Subpart Q – NESHAP for Industrial Process Cooling Towers applies to industrial process cooling towers that are operated with chromium-based water treatment chemicals and are located at a major source of HAP. The proposed cooling towers will not be operated with chromium based water treatment chemicals and will be located at an area source of HAP. Therefore, the proposed cooling towers are not subject to 40 CFR Part 63, Subpart Q.

4.1.2.2 40 CFR Part 63, Subpart ZZZZ

40 CFR Part 63, Subpart ZZZZ – NESHAP for Stationary RICE applies to stationary RICE located at major and area sources of HAP. The proposed fire pump and EGen engines are classified as new stationary RICE as they will be located at an area source of HAP emissions and construction of the engines commenced on or after June 12, 2006. However, pursuant to 40 CFR §63.6590(c)(1), the engines meet the requirements of 40 CFR Part 63, Subpart ZZZZ by meeting the requirements of 40 CFR Part 60, Subparts IIII and JJJJ. B. Braun will comply with 40 CFR

Part 60, Subparts IIII and JJJJ as discussed in Section 4.1.1 and thus will comply with 40 CFR Part 63, Subpart ZZZZ.

4.1.2.3 40 CFR Part 63, Subpart JJJJJJ

40 CFR Part 63, Subpart JJJJJJ – NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources applies to owners and operators of industrial, commercial, and institutional boilers that are located at area sources of HAP. Pursuant to 40 CFR §63.11195(e), 40 CFR Part 63, Subpart JJJJJJ does not apply to natural gas-fired boilers; therefore, the boilers are not subject to 40 CFR Part 63, Subpart JJJJJJ.

4.1.3 New Source Review

The Facility is located in Lehigh County which is classified as in attainment or unclassifiable for all regulated NSR pollutants with respect to the National Ambient Air Quality Standards (NAAQS). However, Lehigh County is managed as a moderate ozone nonattainment area with regard to NNSR applicability by virtue of its inclusion in the Northeast Ozone Transport Region (OTR). As a result, the Facility evaluated the applicability of both the NNSR regulations and PSD regulations.

4.1.3.1 Nonattainment New Source Review

U.S. EPA has approved PADEP's NNSR regulations through their incorporation into Pennsylvania's State Implementation Plan (SIP). These state-specific NNSR regulations are codified in 25 Pa. Code Chapter 127, Subchapter E. NNSR applicability is addressed below under the Commonwealth of Pennsylvania regulatory review section of this PAA.

4.1.3.2 Prevention of Significant Deterioration

The Facility does not meet the definition of a major stationary source, nor does the proposed Expansion Project alone meet the definition of a major stationary source with respect to the Federal PSD rules. As presented in Table B-7 of Appendix B, potential emissions of each regulated NSR pollutant is less than 250 tpy. Therefore, the PSD regulations do not apply to the Facility and an evaluation of PSD is not required.

4.2 COMMONWEALTH OF PENNSYLVANIA REGULATIONS

The proposed project is potentially subject to the following Commonwealth of Pennsylvania air quality regulations which are codified in Title 25 – Environmental Protection of the Pennsylvania Code (25 Pa. Code):

- Chapter 122 – National Standards of Performance for New Stationary Sources
- Chapter 123 – Standards for Contaminants
- Chapter 124 – National Emission Standards for Hazardous Air Pollutants
- Chapter 127 – Construction, Modification, Reactivation, and Operation of Sources
- Chapter 129 – Standards for Sources

A discussion of each specific Pennsylvania requirement is provided in the following subsections.

4.2.1 Chapter 122 – National Standards of Performance for New Stationary Sources

The Federal NSPS are adopted in their entirety by reference at 25 Pa. Code §122.3 and are discussed in detail in the preceding section regarding Federal requirements.

4.2.2 Chapter 123 – Standards for Contaminants

The following sections discuss the applicability of 25 Pa. Code Chapter 123.

4.2.2.1 Particulate Matter Emissions

Standards for PM emissions are addressed in 25 Pa. Code §123.11 through §123.13 of the Commonwealth of Pennsylvania air quality regulations. The proposed boilers are subject to 25 Pa. Code §123.11 – Combustion units requirements. Per 25 Pa. Code §123.11(a)(1), PM from the boilers may not exceed 0.4 lb/MMBtu. The boilers will comply with this requirement. The fire pump, EGen, and cooling towers are considered process sources under the Pennsylvania air quality regulations and are therefore subject to the 25 Pa. Code §123.13 – Processes requirements. Per 25 Pa. Code §123.13(c)(1)(i), PM from the fire pump, EGen, and cooling towers may not exceed 0.04 grains per dry standard cubic foot (gr/dscf). The fire pump, EGen, and cooling towers will comply with this requirement.

4.2.2.2 Sulfur Compound Emissions

Standards for sulfur compound emissions are addressed in 25 Pa. Code §123.21 through §123.25 of the Commonwealth of Pennsylvania air quality regulations. The fire pump and EGen are considered process sources under the Commonwealth of Pennsylvania air quality regulations and are therefore regulated by the 25 Pa. Code §123.21 – General sulfur requirements. In accordance with 25 Pa. Code §123.21, sulfur oxides [expressed as sulfur dioxide (SO_2)] from the fire pump and EGen may not exceed 500 parts per million by volume, dry basis (ppmvd). Use of diesel fuel with a sulfur content of 0.0015% (by weight) or less in the fire pump ensures compliance with this requirement. The use of natural gas, which has a negligible sulfur content, in the EGen ensures compliance with this requirement. The proposed boilers are subject to 25 Pa. Code §123.22 – combustion units sulfur requirements. In accordance with 25 Pa. Code §123.22(c)(1) for the Allentown air basin, the boilers may not emit sulfur oxides (expressed as SO_2) in excess of 3 lb/MMBtu over a 1-hour period. The use of natural gas, which has a negligible sulfur content, in the boilers ensures compliance with this requirement.

4.2.2.3 Visible Emissions

Standards for visible emissions are addressed in 25 Pa. Code §123.41 of the Commonwealth of Pennsylvania air quality regulations. 25 Pa. Code §123.41 prohibits visible emissions in excess of 20% for a period or periods aggregating more than three minutes in any one hour and in excess of 60% at any time. The Facility will comply with this requirement, except as exempted pursuant to 25 Pa. Code §123.42.

4.2.3 Chapter 124 – National Emissions Standards for Hazardous Air Pollutants

The Federal NESHAPs are adopted in their entirety by reference at 25 Pa. Code §124.3 and are discussed in detail in the preceding section regarding Federal requirements.

4.2.4 Chapter 127 – Construction, Modification, and Reactivation of Sources

The following sections discuss the applicability of 25 Pa. Code Chapter 127.

4.2.4.1 Subchapter B – Plan Approval Requirements

Any proposed new air contamination source that is not otherwise exempt from the requirements to obtain a Plan Approval and/or Operating Permit under the provisions of 25 Pa. Code §127.14 requires the facility to obtain Plan Approval from PADEP prior to initiating the proposed change(s). A PAA must meet the content requirements of 25 Pa. Code §127.12 and include a Compliance Review Form (CRF) in accordance with 25 Pa. Code §127.12a. B. Braun has completed the appropriate PADEP PAA forms which have been included as Appendix A of this PAA. The sources subject 25 Pa. Code §127.12 must also show that the source and any air cleaning devices are capable of being and will be operated and maintained in accordance with good air pollution control practices pursuant to 25 Pa. Code §127.12(a)(10).

Pursuant to 25 Pa. Code §127.12(a)(5), an application submitted for PADEP approval shall show that emissions from a new source will be the minimum attainable through the use of Best Available Technology (BAT). BAT is defined in 25 Pa. Code §121.1 as:

> *"Equipment, devices, methods or techniques as determined by the Department which will prevent, reduce or control emissions of air contaminants to the maximum degree possible and which are available or may be made available."*

BAT for each proposed emissions unit is presented in the following sections.

4.2.4.1.1 BAT for the Boilers

B. Braun is proposing to install two 21.0 MMBtu/hr natural gas-fired boilers with low nitrogen oxide (NO_X) burners. Low-NO_X burners are typically the only add-on control technology available for this size boiler. Discussions with the boiler vendor confirmed low-NOx burners are the only available add-on control option for the boilers. The boilers will be equipped with low-NO_X burners which will meet 0.049 lbs NO_X per MMBtu. The boilers will be operated in accordance with the manufacturer's operating procedures and maintained as specified by the manufacturer including periodic boiler tune-ups. Therefore, low NO_X burners and good operating practices represents BAT for these boilers.

4.2.4.1.2 BAT for the Cooling Towers

B. Braun is proposing to install two 2,849 GPM cooling towers with an estimated drift loss of 0.005%. Per discussions with the cooling tower manufacturer, 0.005% drift is the lowest manufacturer guaranteed drift loss available for this size forced draft cooling tower. This low drift loss will minimize PM emissions from PM released during the evaporation of water droplets which contain dissolved solids in the cooling water. Estimated $PM/PM_{10}/PM_{2.5}$ emissions are shown in Table B-7 which will be less than 3.24 tpy. Thus, the drift loss of 0.005% represents BAT for the cooling towers. The cooling towers will be operated in accordance with the manufacturer's specified operating procedures and maintained as specified by the manufacturer. Maintenance will include periodic cleaning of the tower and the tower drift eliminator cells. Good operating practices also represents BAT for the cooling towers.

4.2.4.1.3 BAT for the Fire Pump

B. Braun proposes that operating the fire pump engine in continuous compliance with the applicable Federal and State regulations and operating the engine in accordance with the manufacturer's specifications and good operating practices for minimizing emissions represents BAT for the fire pump.

4.2.4.1.4 BAT for the EGen

B. Braun proposes that operating the EGen engine in continuous compliance with the applicable Federal and State regulations and operating the engine in accordance with the manufacturer's specifications and good operating practices for minimizing emissions represents BAT for the EGen.

4.2.4.2 Subchapter D – Prevention of Significant Deterioration of Air Quality

Pennsylvania incorporates the Federal PSD regulations by reference at 25 Pa. Code §127.83. A discussion of PSD applicability with respect to the project is included above under the Federal requirements.

4.2.4.3 Subchapter E – Nonattainment New Source Review

The Facility is located in Lehigh County which is classified as in attainment or unclassifiable for all regulated NSR pollutants with respect to the NAAQS. However, Lehigh County is managed as a moderate ozone nonattainment area with regard to NNSR applicability by virtue of its inclusion in the OTR pursuant to 25 Pa. Code §127.201(c).

Because the project will result in emissions of VOC and NOX, both precursor pollutants to the formation of ground level ozone, the project must be evaluated with respect to the NNSR requirements. The Facility is not currently classified as a "major" NOX and VOC source under the NNSR permitting requirements because current facility-wide potential NOX emissions do not exceed 100 tpy and facility-wide potential VOC emissions do not exceed 50 tpy, in accordance with TVOP No. 39-00055 Section C, Condition #006. The Facility's status as a minor source with respect to NNSR requirements will not change as a result of the Expansion Project.

4.2.4.4 Subchapter I – Plan Approval and Operating Permit Fees

25 Pa. Code §127.702 specifies the fee required to submit a PAA for facilities. The fee for a PAA for sources subject to standards adopted under Chapter 122 or Chapter 124 is $1,700.00 in accordance with 25 Pa. Code §127.702(d)(3). A check for $1,700.00 payable to the "Commonwealth of Pennsylvania Clean Air Fund" has been provided to the PADEP as part of this application.

4.2.5 Chapter 129 – Standards for Sources

The following sections discuss the applicability of 25 Pa. Code Chapter 129.

4.2.5.1 25 Pa. Code §129.57

25 Pa. Code §129.57 applies to storage tanks greater than or equal to 2,000 gallons storing VOC with a vapor pressure greater than 1.5 pounds per square inch absolute (psia). The proposed diesel fuel storage tank will have a capacity of 359 gallons and is therefore not subject to 25 Pa. Code §129.57.

4.2.5.2 25 Pa. Code §129.201

Standards for NO_X emissions from boilers with a located in Bucks, Chester, Delaware, Montgomery, or Philadelphia Counties are addressed in 25 Pa. Code §129.201. The proposed boilers will be located in Lehigh County and will have a capacity of 21.0 MMBtu/hr; therefore, the boilers are not subject to 25 Pa. Code §129.201.

4.2.5.3 25 Pa. Code §129.203

Standards for NO_X emissions from stationary RICE are addressed in 25 Pa. Code §129.203 and apply to the owner and/or operator of a stationary RICE rated at greater than 1,000 bhp and located in Bucks, Chester, Delaware, Montgomery, or Philadelphia Counties. The proposed fire pump and EGen will be located in Lehigh County; therefore, the fire pump and EGen engines are not subject to 25 Pa. Code §129.203.

4.2.5.4 25 Pa. Code §129.96 – §129.100

25 Pa. Code §§129.96 – 129.100 contains additional Reasonably Available Control Technology (RACT) requirements for sources that meet the definition of a major NO_X or VOC emitting facility. In accordance with TVOP No. 39-00055, Section C, Condition #006, emissions from the Facility are less than 100 tpy of NO_X and 50 tpy of VOC. The Facility will continue to meet these emission limitations after this project. Therefore, the Facility is not a major source of NO_X or VOC and the RACT requirements contained in 25 Pa. Code §§129.96 – 129.100 do not apply to the Facility.

APPENDIX A – PADEP APPLICATION FORMS

0210-PM-PIO0001 4/2018
Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

GENERAL INFORMATION FORM – AUTHORIZATION APPLICATION

Before completing this General Information Form (GIF), read the step-by-step instructions provided in this application package. This version of the General Information Form (GIF) must be completed and returned with any program-specific application being submitted to the Department.

Related ID#s (If Known)				DEP USE ONLY
Client ID#	*94048*	APS ID#		Date Received & General Notes
Site ID#	*487149*	Auth ID#		
Facility ID#	*514477*			

CLIENT INFORMATION

DEP Client ID#	Client Type / Code
94048	*PACOR*

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#
B. Braun Medical, Inc.	*23-2116774*	*00-239-7347*

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2
901 Marcon Blvd.	

Address Last Line – City	State	ZIP+4	Country
Allentown	*PA*	*18109*	*USA*

Client Contact Last Name	First Name	MI	Suffix
Bonar	*Nate*		

Client Contact Title	Phone	Ext
Associate Director, Strategic Capital Projects	*(610) 596-2930*	

Email Address	FAX
Nate.Bonar@bbraunusa.com	*(610) 849-1190*

SITE INFORMATION

DEP Site ID#	Site Name
487149	*B. Braun Medical, Inc.*

EPA ID# *PAD 982 679 169* **Estimated Number of Employees to be Present at Site** *>500*

Description of Site
56.3-acre medical device manufacturing site within an industrial park

County Name	Municipality	City	Boro	Twp	State
Lehigh	*Hanover*	☐	☐	☒	

County Name	Municipality	City	Boro	Twp	State
		☐	☐	☐	

Site Location Line 1	Site Location Line 2
901 Marcon Blvd.	

Site Location Last Line – City	State	ZIP+4
Allentown	*PA*	*18109*

Detailed Written Directions to Site
Interstate 78, US 22 to 987 North to Postal Road to Marcon Blvd.

Site Contact Last Name	First Name	MI	Suffix
Bonar	*Nate*		

Site Contact Title	Site Contact Firm
Associate Director, Strategic Capital Projects	*B. Braun Medical, Inc.*

Mailing Address Line 1	Mailing Address Line 2
901 Marcon Blvd.	

Mailing Address Last Line – City	State	ZIP+4
Allentown	*PA*	*18109*

Phone	Ext	FAX	Email Address
(610) 596-2930		*(610) 849-1190*	*Nate.Bonar@bbraunusa.com*

NAICS Codes (Two- & Three-Digit Codes – List All That Apply) **6-Digit Code** (Optional)
33112

Client to Site Relationship
Owner/Operator

FACILITY INFORMATION

Modification of Existing Facility	Yes	No
1. Will this project modify an existing facility, system, or activity?	☒	☐
2. Will this project involve an addition to an existing facility, system, or activity?	☒	☐

If "Yes", check all relevant facility types and provide DEP facility identification numbers below.

	Facility Type	DEP Fac ID#		Facility Type	DEP Fac ID#
☒	Air Emission Plant	***514477***	☐	Industrial Minerals Mining Operation	
☐	Beneficial Use (water)		☐	Laboratory Location	
☐	Blasting Operation		☐	Land Recycling Cleanup Location	
☐	Captive Hazardous Waste Operation		☐	Mine DrainageTrmt/LandRecyProjLocation	
☐	Coal Ash Beneficial Use Operation		☐	Municipal Waste Operation	
☐	Coal Mining Operation		☐	Oil & Gas Encroachment Location	
☐	Coal Pillar Location		☐	Oil & Gas Location	
☐	Commercial Hazardous Waste Operation		☐	Oil & Gas Water Poll Control Facility	
☐	Dam Location		☐	Oil & Gas Wastewater Storage Impoundment	
☐	Deep Mine Safety Operation -Anthracite		☐	Public Water Supply System	
☐	Deep Mine Safety Operation -Bituminous		☐	Radiation Facility	
☐	Deep Mine Safety Operation -Ind Minerals		☐	Residual Waste Operation	
☐	Encroachment Location (water, wetland)		☐	Storage Tank Location	
☐	Erosion & Sediment Control Facility		☐	Water Pollution Control Facility	
☐	Explosive Storage Location		☐	Water Resource	
			☐	Other:	

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Center of Facility	***40***	***38***	***29.88***	***75***	***26***	***50.23***

Horizontal Accuracy Measure Feet *--or--* Meters

Horizontal Reference Datum Code
- ☒ North American Datum of 1927
- ☐ North American Datum of 1983
- ☐ World Geodetic System of 1984

Horizontal Collection Method Code

Reference Point Code

Altitude Feet ***388*** *--or--* Meters

Altitude Datum Name
- ☐ The National Geodetic Vertical Datum of 1929
- ☐ The North American Vertical Datum of 1988 (NAVD88)

Altitude (Vertical) Location Datum Collection Method Code

Geometric Type Code

Data Collection Date

Source Map Scale Number Inch(es) = Feet
--or-- Centimeter(s) = Meters

PROJECT INFORMATION

Project Name
Expansion Project Plan Approval Application

Project Description
Expansion of current facility operations.

Project Consultant Last Name	First Name	MI	Suffix
Lynch	***Christina***	***R***	

Project Consultant Title	Consulting Firm
Project Manager	***ALL4 LLC***

Mailing Address Line 1	Mailing Address Line 2
P.O. Box 299	***2393 Kimberton Road***

Address Last Line – City		State	ZIP+4
Kimberton		*PA*	*19442*
Phone	**Ext** **FAX**	**Email Address**	
(610) 933-5246	*135*	*clynch@all4inc.com*	

Time Schedules	Project Milestone (Optional)
March 2019	*Commence construction*
May 2021	*Complete construction*

1. **Have you informed the surrounding community and addressed any concerns prior to submitting the application to the Department?** ☒ Yes ☐ No

2. **Is your project funded by state or federal grants?** ☐ Yes ☒ No

Note: If "Yes", specify what aspect of the project is related to the grant and provide the grant source, contact person and grant expiration date.
Aspect of Project Related to Grant
Grant Source: _____
Grant Contact Person: _____
Grant Expiration Date: _____

3. **Is this application for an authorization on Appendix A of the Land Use Policy? (For referenced list, see Appendix A of the Land Use Policy attached to GIF instructions)** ☐ Yes ☒ No

Note: If "No" to Question 3, the application is not subject to the Land Use Policy.
If "Yes" to Question 3, the application is subject to this policy and the Applicant should answer the additional questions in the **Land Use Information** section.

LAND USE INFORMATION – *N/A*

Note: Applicants are encouraged to submit copies of local land use approvals or other evidence of compliance with local comprehensive plans and zoning ordinances.

1. **Is there an adopted county or multi-county comprehensive plan?** ☐ Yes ☐ No

2. **Is there an adopted municipal or multi-municipal comprehensive plan?** ☐ Yes ☐ No

3. **Is there an adopted county-wide zoning ordinance, municipal zoning ordinance or joint municipal zoning ordinance?** ☐ Yes ☐ No

Note: If the Applicant answers "No" to either Questions 1, 2 or 3, the provisions of the PA MPC are not applicable and the Applicant does not need to respond to questions 4 and 5 below.
If the Applicant answers "Yes" to questions 1, 2 and 3, the Applicant should respond to questions 4 and 5 below.

4. **Does the proposed project meet the provisions of the zoning ordinance or does the proposed project have zoning approval?** If zoning approval has been received, attach documentation. ☐ Yes ☐ No

5. **Have you attached Municipal and County Land Use Letters for the project?** ☐ Yes ☐ No

COORDINATION INFORMATION

Note: The PA Historical and Museum Commission must be notified of proposed projects in accordance with DEP Technical Guidance Document 012-0700-001 and the accompanying Cultural Resource Notice Form.

If the activity will be a mining project (i.e., mining of coal or industrial minerals, coal refuse disposal and/or the operation of a coal or industrial minerals preparation/processing facility), respond to questions 1.0 through 2.5 below.

If the activity will not be a mining project, skip questions 1.0 through 2.5 and begin with question 3.0.

1.0	**Is this a coal mining project?** If "Yes", respond to 1.1-1.6. If "No", skip to Question 2.0.	☐	Yes	☐	No
1.1	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be equal to or greater than 200 tons/day?**	☐	Yes	☐	No
1.2	**Will this coal mining project involve coal preparation/ processing activities in which the total amount of coal prepared/processed will be greater than 50,000 tons/year?**	☐	Yes	☐	No
1.3	**Will this coal mining project involve coal preparation/ processing activities in which thermal coal dryers or pneumatic coal cleaners will be used?**	☐	Yes	☐	No
1.4	**For this coal mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?**	☐	Yes	☐	No
1.5	**Will this coal mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?**	☐	Yes	☐	No
1.6	**Will this coal mining project involve underground coal mining to be conducted within 500 feet of an oil or gas well?**	☐	Yes	☐	No
2.0	**Is this a non-coal (industrial minerals) mining project?** If "Yes", respond to 2.1-2.6. If "No", skip to Question 3.0.	☐	Yes	☐	No
2.1	**Will this non-coal (industrial minerals) mining project involve the crushing and screening of non-coal minerals other than sand and gravel?**	☐	Yes	☐	No
2.2	**Will this non-coal (industrial minerals) mining project involve the crushing and/or screening of sand and gravel with the exception of wet sand and gravel operations (screening only) and dry sand and gravel operations with a capacity of less than 150 tons/hour of unconsolidated materials?**	☐	Yes	☐	No
2.3	**Will this non-coal (industrial minerals) mining project involve the construction, operation and/or modification of a portable non-metallic (i.e., non-coal) minerals processing plant under the authority of the General Permit for Portable Non-metallic Mineral Processing Plants (i.e., BAQ-PGPA/GP-3)?**	☐	Yes	☐	No
2.4	**For this non-coal (industrial minerals) mining project, will sewage treatment facilities be constructed and treated waste water discharged to surface waters?**	☐	Yes	☐	No
2.5	**Will this non-coal (industrial minerals) mining project involve the construction of a permanent impoundment meeting one or more of the following criteria: (1) a contributory drainage area exceeding 100 acres; (2) a depth of water measured by the upstream toe of the dam at maximum storage elevation exceeding 15 feet; (3) an impounding capacity at maximum storage elevation exceeding 50 acre-feet?**	☐	Yes	☐	No

3.0	**Will your project, activity, or authorization have anything to do with a well related to oil or gas production, have construction within 200 feet of, affect an oil or gas well, involve the waste from such a well, or string power lines above an oil or gas well?** If "Yes", respond to 3.1-3.3. If "No", skip to Question 4.0.	☐	Yes	☒	No
3.1	**Does the oil- or gas-related project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water (including wetlands)?**	☐	Yes	☐	No
3.2	**Will the oil- or gas-related project involve discharge of industrial wastewater or stormwater to a dry swale, surface water, ground water or an existing sanitary sewer system or storm water system?** If "Yes", discuss in *Project Description*.	☐	Yes	☐	No
3.3	**Will the oil- or gas-related project involve the construction and operation of industrial waste treatment facilities?**	☐	Yes	☐	No
4.0	**Will the project involve a construction activity that results in earth disturbance?** If "Yes", specify the total disturbed acreage. **4.0.1 Total Disturbed Acreage** ***25 acres***	☒	Yes	☐	No
5.0	**Does the project involve any of the following?** If "Yes", respond to 5.1-5.3. If "No", skip to Question 6.0.	☐	Yes	☒	No
5.1	**Water Obstruction and Encroachment Projects – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a watercourse, floodway or body of water?**	☐	Yes	☐	No
5.2	**Wetland Impacts – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a wetland?**	☐	Yes	☐	No
5.3	**Floodplain Projects by the commonwealth, a Political Subdivision of the commonwealth or a Public Utility – Does the project involve any of the following: placement of fill, excavation within or placement of a structure, located in, along, across or projecting into a floodplain?**	☐	Yes	☐	No
6.0	**Will the project involve discharge of stormwater or wastewater from an industrial activity to a dry swale, surface water, ground water or an existing sanitary sewer system or separate storm water system?**	☒	Yes	☐	No
7.0	**Will the project involve the construction and operation of industrial waste treatment facilities?**	☐	Yes	☒	No
8.0	**Will the project involve construction of sewage treatment facilities, sanitary sewers, or sewage pumping stations?** If "Yes", indicate estimated proposed flow (gal/day). Also, discuss the sanitary sewer pipe sizes and the number of pumping stations/treatment facilities/name of downstream sewage facilities in the *Project Description*, where applicable. **8.0.1 Estimated Proposed Flow (gal/day)** ***To be determined***	☒	Yes	☐	No
9.0	**Will the project involve the subdivision of land, or the generation of 800 gpd or more of sewage on an existing parcel of land or the generation of an additional 400 gpd of sewage on an already-developed parcel, or the generation of 800 gpd or more of industrial wastewater that would be discharged to an existing sanitary sewer system?**	☒	Yes	☐	No
	9.0.1 Was Act 537 sewage facilities planning submitted and approved by DEP? If "Yes" attach the approval letter. Approval required prior to 105/NPDES approval. ***[a] The Township is responsible for the sanitary sewer system.***	☐	Yes	☒	No[a]
10.0	**Is this project for the beneficial use of biosolids for land application within Pennsylvania?** If "Yes" indicate how much (i.e. gallons or dry tons per year). **10.0.1 Gallons Per Year (residential septage)** _____ **10.0.2 Dry Tons Per Year (biosolids)**	☐	Yes	☒	No

11.0	**Does the project involve construction, modification or removal of a dam?** If "Yes", identify the dam.	☐	Yes	☒	No
	11.0.1 Dam Name				
12.0	**Will the project interfere with the flow from, or otherwise impact, a dam?** If "Yes", identify the dam.	☐	Yes	☒	No
	12.0.1 Dam Name				
13.0	**Will the project involve operations (excluding during the construction period) that produce air emissions (i.e., NOX, VOC, etc.)?** If "Yes", identify each type of emission followed by the amount of that emission.	☒	Yes	☐	No
	13.0.1 Enter all types & amounts of emissions; separate each set with semicolons. ***Refer to the application narrative and Appendix B for additional information.***				
14.0	**Does the project include the construction or modification of a drinking water supply to serve 15 or more connections or 25 or more people, at least 60 days out of the year?** If "Yes", check all proposed sub-facilities.	☐	Yes	☒	No
	14.0.1 Number of Persons Served				
	14.0.2 Number of Employee/Guests				
	14.0.3 Number of Connections				
	14.0.4 Sub-Fac: Distribution System	☐	Yes	☐	No
	14.0.5 Sub-Fac: Water Treatment Plant	☐	Yes	☐	No
	14.0.6 Sub-Fac: Source	☐	Yes	☐	No
	14.0.7 Sub-Fac: Pump Station	☐	Yes	☐	No
	14.0.8 Sub Fac: Transmission Main	☐	Yes	☐	No
	14.0.9 Sub-Fac: Storage Facility	☐	Yes	☐	No
15.0	**Will your project include infiltration of storm water or waste water to ground water within one-half mile of a public water supply well, spring or infiltration gallery?**	☐	Yes	☒	No
16.0	**Is your project to be served by an existing public water supply?** If "Yes", indicate name of supplier and attach letter from supplier stating that it will serve the project.	☒	Yes	☐	No
	16.0.1 Supplier's Name ***City of Bethlehem***				
	16.0.2 Letter of Approval from Supplier is Attached	☒	Yes	☐	No
17.0	**Will this project involve a new or increased drinking water withdrawal from a stream or other water body?** If "Yes", should reference both Water Supply and Watershed Management.	☐	Yes	☒	No
	17.0.1 Stream Name				
18.0	**Will the construction or operation of this project involve treatment, storage, reuse, or disposal of waste?** If "Yes", indicate what type (i.e., hazardous, municipal (including infectious & chemotherapeutic), residual) and the amount to be treated, stored, re-used or disposed.	☒	Yes	☐	No
	18.0.1 Type & Amount ***To be determined***				
19.0	**Will your project involve the removal of coal, minerals, etc. as part of any earth disturbance activities?**	☐	Yes	☒	No
20.0	**Does your project involve installation of a field constructed underground storage tank?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit.	☐	Yes	☒	No
	20.0.1 Enter all substances & capacity of each; separate each set with semicolons.				
21.0	**Does your project involve installation of an aboveground storage tank greater than 21,000 gallons capacity at an existing facility?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit.	☐	Yes	☒	No
	21.0.1 Enter all substances & capacity of each; separate each set with semicolons.				

22.0	**Does your project involve installation of a tank greater than 1,100 gallons which will contain a highly hazardous substance as defined in DEP's Regulated Substances List, 2570-BK-DEP2724?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. **22.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No
23.0	**Does your project involve installation of a storage tank at a new facility with a total AST capacity greater than 21,000 gallons?** If "Yes", list each Substance & its Capacity. **Note:** Applicant may need a Storage Tank Site Specific Installation Permit. **23.0.1 Enter all substances & capacity of each; separate each set with semicolons.**	☐	Yes	☒	No
24.0	**Will the intended activity involve the use of a radiation source?**	☐	Yes	☒	No

CERTIFICATION

I certify that I have the authority to submit this application on behalf of the applicant named herein and that the information provided in this application is true and correct to the best of my knowledge and information.

Type or Print Name *Rex Boland*

Rex R. Boland — **Signature**

VP/GM of Allentown Operations — **Title**

7-26-18 — **Date**

ATTACHMENT –
CITY OF BETHLEHEM WATER APPROVAL LETTER

CITY OF BETHLEHEM

Department of Water & Sewer Resources

10 East Church Street, Bethlehem, Pennsylvania 18018-6025

www.bethlehem-pa.gov
Phone: (610) 865-7076
Fax: (610) 865-7331

July 18, 2018

Steve Reimer

Facilities, Project Engineer
B. Braun Medical Inc.
901 Marcon Boulevard
Allentown, PA 18109-9341

Re: 939 Marcon Blvd property

Steve:

In reply to your email sent 07.18.2018, City water service is available to the above-referenced project, subject to all rules, regulations and requirements of the City of Bethlehem.

If there are any questions, please call me at 610-997-7947.

Yours Respectfully,

Robert Taylor
Design Assistant
610.865.7076
rtaylor@bethlehem-pa.gov

Cc: File

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Submit in Triplicate

Application for Plan Approval to Construct, Modify or Reactivate an Air Contamination Source and/or Install an Air Cleaning Device

This application and the General Information Form (GIF) must be included in the submittal

Before completing this form, read the instructions provided with this form.

Section A - Facility Name, Checklist And Certification

Organization Name or Registered Fictitious Name/Facility Name: ***B. Braun Medical, Inc.***

DEP Client ID# (If Known): _____

Type of Review required and Fees:

Source which is not subject to NSPS, NESHAPs, MACT, NSR and PSD: ..... $_____
Source requiring approval under NSPS or NESHAPS or both: ..... $***1,700***
Source requiring approval under NSR: ..... $_____
Source requiring the establishment of a MACT limitation: ..... $_____
Source requiring approval under PSD: ..... $_____

Applicant's Checklist

Check the following list to make sure that all the required documents are included.

- ☒ **General Information Form (GIF)**
- ☒ **Processes Plan Approval Application**
- ☒ **Compliance Review Form** or provide reference of most recently submitted compliance review form for facilities submitting on a periodic basis: _____
- ☒ **Copy and Proof of County and Municipal Notifications**
- ☒ **Permit Fees**
- ☒ **Addendum A:** Source Applicable Requirements (only applicable to existing Title V facility)

Certification of Truth, Accuracy and Completeness by a Responsible Official

I, ***Rex Boland***, certify under penalty of law in 18 Pa. C. S. A. §4904, and 35 P.S. §4009(b) (2) that based on information and belief formed after reasonable inquiry, the statements and information in this application are true, accurate and complete.

(Signature): Rex A. Boland Date: 7-26-18

Name (Print): ***Rex Boland*** Title: ***VP/GM of Allentown Operations***

OFFICIAL USE ONLY

Application No. _____ Unit ID _____ Site ID _____
DEP Client ID #: _____ APS. ID _____ AUTH. ID _____
Date Received _____ Date Assigned _____ Reviewed By _____
Date of 1st Technical Deficiency _____ Date of 2nd Technical Deficiency _____
Comments: _____

Section B - Combustion Unit Information

1. Combustion Units: ☐ Coal ☐ Oil ☒ Natural Gas Other: _____

Description: ***Two 21.0 MMBtu/hr boilers***

Manufacturer	Model No.	Number of units
Bryan Boilers (or equivalent)	***RW2100-W (or equivalent)***	***2***

Maximum heat input (Btu/hr)	Rated heat input (Btu/hr)	Typical heat input (Btu/hr)	Furnace Volume
21.0 MMBtu/hr (each)	***21.0 MMBtu/hr (each)***	***21.0 MMBtu/hr (each)***	***N/A***

Grate Area (if applicable)	Method of firing
N/A	***Forced draft, direct radient heat***

Indicate how combustion air is supplied to boiler
Fresh air vent and/or duct

Indicate the Steam Usage:
N/A – the boilers are generating hot water for heating hot water system.

Mark and describe soot Cleaning Method: ***N/A***

i. Air Blown
ii. Steam Blown
iii. Brushed and Vacuumed
iv. Other _____
v. Frequency of Cleaning _____

Maximum Operating schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	***7***	***365***	***8,760***

Operational restrictions taken or requested, if any (e.g., bottlenecks or voluntary restrictions to limit potential to emit)

Capacity (specify units)

Per hour	Per day	Per week	Per year
21.0 MMBtu/hr (each)	***504 MMBtu (each)***	***3,528 MMBtu (each)***	***183,960 MMBtu (each)***

Typical Operating schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	***7***	***365***	***8,760***

Seasonal variations (Months): If variations exist, describe them. ***– N/A***

Operating using primary fuel: _____ From _____ to _____
Operating using secondary fuel: _____ Form _____ to _____
Non-operating: From _____ to _____

2. Specify the primary, secondary and startup fuel. Furnish the details in item 3.
The boilers will only fire natural gas.

Section B - Combustion Unit Information (Continued)

3. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas ***(each unit)***	***20,588*** SCFH	***180.4*** X ***10^6*** SCF	***Negligible*** gr/100 SCF	***N/A***	***1,020*** Btu/SCF
Gas (other)	SCFH	X 10^6 Gal	gr/100 SCF		Btu/SCF
Coal					
Other*					

* Note: Describe and furnish information separately for other fuels in Addendum B.

4. Burner

Manufacturer	Model Number	Type of Atomization (Steam, air, press, mech., rotary cup)
Bryan Boilers (or equivalent)	***N/A***	***N/A***

Number of Burners	Maximum fuel firing rate (all burners)	Normal fuel firing rate
1 per boiler	***20,588 SCFH***	***20,588 SCFH***

If oil, temperature and viscosity.
N/A

Maximum theoretical air requirement
N/A

Percent excess air 100% rating
N/A

Turndown ratio
N/A

Combustion modulation control (on/off, low-high fire, full automatic, manual). Describe.
N/A

Main burner flame ignition method (electric spark, auto gas pilot, hand-held torch, other). Describe.
Auto gas pilot

5. Nitrogen Oxides (NO_x) control Options

Mark and describe the NO_x control options adopted

Low excess air (LEA)	Flue gas recirculation	Other._____
Over fire air (OFA)	Burner out of service	
Low-NO_x burner	Reburning	
Low NO_x burners with over fire air	Flue gas treatment (SCR / SNCR)	

Section B - Combustion Unit Information (Continued)

6. Miscellaneous Information

Describe fly ash reinjection operation
N/A

Describe, in detail, the equipment provided to monitor and to record the source(s) operating conditions, which may affect emissions of air contaminants. Show that they are reasonable and adequate.

The boilers will each be installed with a combination thermometer and altitude gauge, water temperature control, and high limit control. The amount of fuel fired in the boilers each month will be monitored and recorded. These boiler controls will help ensure proper boiler operation.

Describe each proposed modification to an existing source.

N/A – the boilers are proposed sources.

Describe how emissions will be minimized especially during start up, shut down, combustion upsets and/or disruptions. Provide emission estimates for start up, shut down and upset conditions. Provide duration of start up and shut down.

The boilers will be operated and maintained in accordance with manufacturer specifications and with good combustion practices for minimizing emissions.

Describe in detail with a schematic diagram of the control options adopted for SO_2 (if applicable).
N/A

Anticipated milestones:

Expected commencement date of construction/reconstruction: ***March 2019***
Expected completion date of construction/reconstruction: ***May 2021***
Anticipated date(s) of start-up: ***May 2021***

Section C - Air Cleaning Device – *N/A – No add-on control devices*

1. Precontrol Emissions*

Emission Rate

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM					
PM_{10}					
SOx					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----		-----

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Conditioning – *N/A*

Water quenching ☐ YES ☐ NO Water injection rate _____GPM

Radiation and convection cooling ☐ YES ☐ NO	Air dilution ☐ YES ☐ NO If YES, _____ CFM
Forced draft ☐ YES ☐ NO	Water cooled duct work ☐ YES ☐ NO

Other _____

Inlet volume _____ ACFM@ _____ °F	Outlet volume _____ ACFM@ _____ °F _____ % Moisture

Describe the system in detail.

Section C - Air Cleaning Device (Continued) – *N/A – No add-on control devices*

3. Inertial and Cyclone Collectors

Manufacturer	Type	Model No.

Pressure Drop (in. of water)	Inlet Volume	Outlet Volume
	_____ ACFM @ _____ °F	_____ ACFM @ _____°F _____% Moisture

Number of Individual Cyclone(s)	Outlet Straightening Vanes Used? ☐ Yes ☐ No

Length of Cyclone(s) Cylinder (ft)	Diameter of Cyclone(s) Cylinder	Length of cyclone(s) cone (ft)

Inlet Diameter (ft) or Duct Area (ft^2) of Cyclone(s)	Outlet Diameter (ft) or Duct area (ft^2) of cyclone(s)

If a multi-clone or multi-tube unit is installed, will any of the individual cyclones or cyclone tubes be blanked or blocked off?

Describe any exhaust gas recirculation loop to be employed.

Attach particle size efficiency curve

Emission data

Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A – No add-on control devices*

4. Fabric Collector

Equipment Specifications

Manufacturer	Model No. ☐ Pressurized Design ☐ Suction Design	
Number of Compartments	Number of Filters Per Compartment	Is Baghouse Insulated? ☐ Yes ☐ No

Can each compartment be isolated for repairs and/or filter replacement? ☐ Yes ☐ No

Are temperature controls provided? (Describe in detail) ☐ Yes ☐ No

Dew point at maximum moisture _____ °F | Design inlet volume _____ SCFM

Type of Fabric

Material _____ ☐ Felted ☐ Membrane

Weight _____ oz/sq.yd ☐ Woven ☐ Others: List: _____

Thickness _____ in ☐ Felted-Woven

Fabric permeability (clean) @ ½" water-Δ P _____ CFM/sq.ft.

Filter dimensions _____ Diameter/Width _____

Effective area per filter _____ | Maximum operating temperature (°F) _____

Effective air to cloth ratio Minimum _____ Maximum _____

Drawing of Fabric Filter

A sketch of the fabric filter showing all access doors, catwalks, ladders and exhaust ductwork, location of each pressure and temperature indicator should be attached.

Operation and Cleaning

Volume of gases handled _____ ACFM _____ °F	Pressure drop across collector (in. of water). Describe the equipment to be used to monitor the pressure drop.

Type of filter cleaning

☐ Manual Cleaning ☐ Bag Collapse ☐ Reverse Air Jets

☐ Mechanical Shakers ☐ Sonic Cleaning ☐ Other: _____

☐ Pneumatic Shakers ☐ Reverse Air Flow

If compressed air is required for collector operation, describe the equipment with the compressor to provide dry air free from oil.

Cleaning Initiated By

☐ Timer Frequency if timer actuated _____

☐ Expected pressure drop range _____ in. of water ☐ Other Specify _____

Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.

Describe the warning/alarm system that protects against operation when the unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A – No add-on control devices*

5. Wet Collection Equipment: _____

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Relative Particulate/Gas Velocity (ejector scrubbers only)

Describe the internal features (e.g., variable throat, gas/liquid diffusion plates, spray nozzles, liquid redistributors, bed limiters, etc.).

Describe pH monitoring and pH adjustment systems, if applicable.

Describe mist eliminator or separator (type, configuration, backflush capability, frequency).

Attach particulate size efficiency curve.

Operating Parameters

Inlet volume of gases handled _____ (ACFM) @_____°F	Outlet volume of gases handled _____ (ACFM) @_____ °F _____% Moisture

Liquid flow rates. Describe equipment provided to measure liquid flow rates to scrubber (e.g., quenching section, recirculating solution, makeup water, bleed flow, etc.)

Describe scrubber liquid supply system (amount of make-up and recirculating liquid, capacity of recirculating liquid system, etc).

State pressure drop range (in water) across scrubber (e.g., venturi throat, packed bed, etc.) only. Describe the equipment provide to measure the pressure drop. Do not include duct or de-mister losses.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A – No add-on control devices*

6. Electrostatic Precipitator

Equipment specifications

Manufacturer	Model No.	☐ Wet ☐ Dry ☐ Single-Stage ☐ Two-Stage

Gas distribution grids ☐ YES ☐ NO	Design inlet volume (SCFM) _____ Maximum operating temperature (°F) _____

Total collecting surface area _____ sq. ft. Collector plates size length _____ ft. x width _____ ft.

Number of fields _____ Number of collector plates/field _____. Spacing between collector plates _____inches.

Maximum gas velocity _____ ft/sec. Minimum gas treatment time: _____ sec.

Total discharge electrode length _____ ft.

Number of discharge electrodes _____ Number collecting electrode rappers _____

Rapper control ☐ Magnetic ☐ Pneumatic ☐ Other _____

Describe in detail

Operating parameters

Inlet gas temperature (°F) _____ Outlet gas temperature (°F) _____	State pressure drop range (water gauge) across collector only. Describe the equipment.
Volume of gas handled (ACFM) _____	Dust resistivity (ohm-cm). Will resistivity vary?

Power requirements

Number and size of Transformer Rectifier sets by electrical field

Field No.	No. of Sets	Each Transformer KVA	Each Rectifier	
			KV Ave./Peak	MaDC

Current density	Corona power	Corona power density
_____ Micro amperes/ft^2	_____ Watts/1000 ACFM	_____ Watts/ft^2

Will a flue gas conditioning system be employed? If yes, describe it.

Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A – No add-on control devices*

7. Absorption Equipment: _____

Equipment specifications

Manufacturer	Type	Model No

Design inlet volume (SCFM)	Tower height (ft) and inside diameter (ft)
Packing type and size (if applicable)	Height of packing (ft) (if applicable)
Number of trays (if applicable)	Number of bubble caps (if applicable)

Configuration: ☐ Counter-current ☐ Cross flow ☐ Cocurrent flow

Describe pH and/or other monitoring and controls

Absorbent information

Absorbent type and concentration	Sorbent injection rate	Retention time (sec)

Attach equilibrium data for absorption (If applicable).

Attach any additional information regarding auxiliary equipment, reagent (slurry mix) supply system (once through or recirculating, system capacity, etc) to thoroughly evaluate the control equipment. Indicate the flow rates for makeup, bleed and recirculation.

Operating parameters

Volume of gas handled (ACFM)	Inlet temperature (°F)	Pressure drop (in of water) and liquid flow rate. Describe the equipment.

State operating range for pH and/or absorbent concentration in scrubber liquid.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A – No add-on control devices*

8. ☐ **SELECTIVE CATALYTIC REDUCTION (SCR)**

☐ **SELECTIVE NON-CATALYTIC REDUCTION (SNCR)**

☐ **NON-SELECTIVE CATALYTIC REDUCTION (NSCR)**

Equipment specifications

Manufacturer	Type	Model No

Design inlet volume (SCFM)	Design operating temperature (°F)

Is the system equipped with process controls for proper mixing/control of the reducing agent in gas stream? If yes, give details.

Attach efficiency and other pertinent information (e.g., Ammonia, urea slip).

Operating parameters

Volume of gases handled (ACFM) _____ @ _____ (°F)

Operating temperature range for the SCR/SNCR/NSCR system (°F) From To

Reducing agent used, if any.	Oxidation catalyst used, if any.

State expected range of usage rate and concentration.

Service life of catalyst	Ammonia slip (ppm)

Describe fully with a sketch giving locations of equipment, controls system, important parameters and method of operation.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A – No add-on control devices*

9. Other Control Equipment: _____

Equipment specifications

Manufacturer	Type	Model No

Design inlet volume (SCFM)	Capacity

Describe pH monitoring and pH adjustment, if any.

Indicate the liquid flow rate and describe equipment provided to measure pressure drop and flow rate, if any.

Attach efficiency curve and/ or other efficiency information.

Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment.

Operating parameters

Volume of gas handled

_____ @ _____ °F _____ % Moisture

Describe, in detail, important parameters and method of operation.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

10. Costs – *N/A*

Indicate cost associated with air cleaning device and its operating cost (attach documentation if necessary)

Device	Direct Cost	Indirect Cost	Total Cost	Operating Cost

11 MISCELLANEOUS

Describe in detail the removal, handling and disposal of dust, effluent, etc. from the air cleaning device including proposed methods of controlling fugitive emissions.

N/A

Attach manufacturer's performance guarantees and/or warranties for each of the major components of the control system (or complete system).

The manufacturer's specification sheet is included within Appendix C.

Attach the maintenance schedule for the control equipment and any part of the process equipment that, if in disrepair, would increase air contaminant emissions.

The boilers and all of its emissions-related equipment will be maintained as per the manufacturer's maintenance schedule.

Section D - Additional Information

Will the construction, modification, etc. of the sources covered by this application increase emissions from other sources at the facility? If so, describe and quantify.

No – emissions from other sources at the Facility will not be affected.

If this project is subject to any one of the following, attach a demonstration to show compliance with applicable standards

a. Prevention of Significant Deterioration permit (PSD), 40 CFR Part 52? ☐ YES ☒ NO

b. New Source Review, 25 Pa. Code Chapter 127, Subchapter E? ☐ YES ☒ NO

c. New Source Performance Standards, 40 CFR Part 60? ☒ YES ☐ NO
(If Yes, which subpart) ***Subpart Dc***

d. National Emissions Standards for Hazardous Air Pollutants (NESHAPS), 40 CFR Part 61? ☐ YES ☒ NO
If Yes, which subpart) _____

e. Maximum Achievable Control Technology (MACT), 40 CFR Part 63? ☐ YES ☒ NO
(If Yes, which subpart) _____

Attach a demonstration showing that the emissions from any new source will be the minimum attainable through the use of best available technology (BAT).

Please refer to the application narrative.

Provide emission increases and decreases in allowable (or potential) and actual emissions within the last 5 years for applicable PSD pollutant(s) if the facility is an existing major facility (for PSD purposes)

N/A

Section D - Additional Information (Continued) – *N/A*

Indicate emission increases and decreases in tons per year (tpy), for volatile organic compounds (VOCs) and nitrogen oxides (NOx) for NSR applicability since January 1, 1991 or other applicable dates (See other applicable date in instructions). The emissions increases include all emissions including stack, fugitive, material transfer, other emission generating activities, quantifiable emissions from the exempted source(s), etc.

Permit number (if applicable)	Date issued	Indicate ***Yes*** or ***No*** if emission increases and decreases were used previously for netting	Source I.D. or Name	**VOC**s		**NOx**	
				Emission increases in potential to emit (tpy)	Creditable emission decreases in actual emissions (tpy)	Emission increases in potential to emit (tpy)	Creditable emission decreases in actual emissions (tpy)

If the source is subject to 25 Pa. Code Chapter 127, Subchapter E, New Source Review requirements,

a. Identify Emission Reduction Credits (ERCs) for emission offsets or demonstrate ability to obtain suitable ERCs for emission offsets.

b. Provide a demonstration that the lowest achievable emission rate (LAER) control techniques will be implemented (if applicable).

c. Provide an analysis of alternate sites, sizes, production processes and environmental control techniques demonstrating that the benefits of the proposed source outweigh the environmental and social costs (if applicable).

Attach calculations and any additional information necessary to thoroughly evaluate compliance with all the applicable requirements of 25 Pa. Code Article III and applicable requirements of the Clean Air Act and regulations adopted there under. The Department may request additional information to evaluate the application such as a stand by plan, a plan for air pollution emergencies, air quality modeling, etc.

Section E - Compliance Demonstration – *Refer to Addendum A Forms.*

Note: Complete this section if the facility is not a-Title V facility. Title V facilities must complete Addendum A. [(a)]

Method of Compliance Type: Check all that apply and complete all appropriate sections below.

☐ Monitoring ☐ Testing ☐ Reporting
☐ Recordkeeping ☐ Work Practice Standard

Monitoring:

a. Monitoring device type (stack test, CEM etc.):

b. Monitoring device location:

c. Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Testing:

a. Reference Test Method Citation:

b. Reference Test Method Description:

Recordkeeping:

Describe the parameters that will be recorded and the recording frequency:

Reporting:

a. Describe the type of information to be reported and the reporting frequency:

b. Reporting start date:

Work Practice Standard: Describe each

(a) The B. Braun Facility is a Title V Facility and therefore, in accordance with the form instructions, completed Addendum A forms.

Section F - Flue and Air Contaminant Emission

1. Estimated Maximum Emissions*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM				
PM_{10}				
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----

Please refer to Appendix B – Emissions Inventory.

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number ***TBD***

List Source(s) or source ID exhausted to this stack:	% of flow exhausted to stack: ***100***
TBD – Two 21.0 MMBtu/hr Boilers	

Stack height above grade (ft.) ***57' 3''*** Grade elevation (ft.) ***393.75***	Stack diameter (ft) or Outlet duct area (sq. ft.) ***28 inches***	Weather Cap ☒ YES ☐ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.

525 ft.

Does stack height meet Good Engineering Practice (GEP)?

Yes

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions.

Location of Stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Center of Facility	***40***	***38***	***29.88***	***75***	***26***	***50.23***

Stack Exhaust

Volume ***Unknown*** ACFM Temperature ***300 (estimated)*** °F Moisture ***Unknown*** %

Exhauster (attach fan curves) ***N/A*** in. of water ***N/A*** HP @ ***N/A*** RPM.

** If the datum and collection method information and codes differ from those provided on the General Information Form - Authorization Application, provide the additional required by that form on a separate sheet.

Section G - Attachments

Number and list all attachments submitted with this application below:

Application Narrative
Appendix A – PADEP Application Forms
Appendix B – Emissions Inventory
Appendix C – Manufacturer Specification Sheets
Appendix D – Municipal Notification Letters

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.

282 HP Clarke Model JU6H- UFADW8 fire pump powered by a John Deere 6068 Series Power Tech E engine (or equivalent)

Manufacturer	Model No.	Number of Sources
Clarke (or equivalent)	***JU6H-UFADW8 (or equivalent)***	***1***
Source Designation	Maximum Capacity	Rated Capacity
TBD – 282 HP Fire Pump	***282 HP***	***282 HP***

Type of Material Processed
N/A

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	***7***	***365***	***500***

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units) – *N/A*

Per Hour	Per Day	Per Week	Per Year

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	***7***	***365***	***500***

Seasonal variations (Months) From to

If variations exist, describe them
N/A

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number ***Oil Number 2 (ULSD)***	***13*** GPH @ 60°F	***6,500*** X 10^3 Gal	***0.0015***% by wt	***N/A***	***140,000*** Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Gas (other) _____	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal _____	TPH	Tons	% by wt		Btu/lb
Other * _____					
_____					
_____					

*Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information (Continued)

3. Burner – *N/A*

Manufacturer	Type and Model No.	Number of Burners

Description:

Rated Capacity	Maximum Capacity

4. Process Storage Vessels

A. For Liquids:

Name of material stored
Diesel fuel

Tank I.D. No.	Manufacturer	Date Installed
TBD	***Aurora (or equivalent)***	***TBD***

Maximum Pressure	Capacity (gallons/Meter^3)
35 psi	***359 gallons***

Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)
Emergency vent

Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)
Unknown	***Unknown***

Type of Roof: Describe:
Fixed

Total Throughput Per Year	Number of fills per day (fill/day): ***Variable*** Filling Rate (gal./min.): ***Variable*** Duration of fill hr./fill): ***Variable***
Variable	

B. For Solids – *N/A*

Type: ☐ Silo ☐ Storage Bin ☐Other, Describe	Name of Material Stored

Silo/Storage Bin I.D. No.	Manufacturer	Date Installed

State whether the material will be stored in loose or bags in silos	Capacity (Tons)

Turn over per year in tons	Turn over per day in tons

Describe fugitive dust control system for loading and handling operations

Describe material handling system

5. Request for Confidentiality

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☒ No
If yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information (Continued)

6. Miscellaneous Information

Attach flow diagram of process giving all (gaseous, liquid and solid) flow rates. Also, list all raw materials charged to process equipment, and the amounts charged (tons/hour, etc.) at rated capacity (give maximum, minimum and average charges describing fully expected variations in production rates). Indicate (on diagram) all points where contaminants are controlled (location of water sprays, collection hoods, or other pickup points, etc.). Describe collection hoods location, design, airflow and capture efficiency. Describe any restriction requested and how it will be monitored.

Refer to Appendix C for the manufacturer specification sheet.

Describe fully the facilities provided to monitor and to record process operating conditions, which may affect the emission of air contaminants. Show that they are reasonable and adequate.

A non-resettable hour meter will be installed on the fire pump. The operating hours and type of operation will be recorded for each use of the fire pump.

Describe each proposed modification to an existing source.

N/A – the fire pump is a proposed source.

Identify and describe all fugitive emission points, all relief and emergency valves and any by-pass stacks.

Refer to Appendix C for the manufacturer specification sheet.

Describe how emissions will be minimized especially during start up, shut down, process upsets and/or disruptions.

The fire pump will be operated and maintained according to the manufacturer's written instructions and with good operating practices for minimizing emissions.

Anticipated Milestones:

i. Expected commencement date of construction/reconstruction/installation: ***March 2019***
ii. Expected completion date of construction/reconstruction/installation: ***May 2021***
iii. Anticipated date of start-up: ***May 2021***

Section C - Air Cleaning Device – *N/A*

1. Precontrol Emissions*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM					
PM_{10}					
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling

Water quenching ☐ Yes ☐ No Water injection rate _____ GPM

Radiation and convection cooling ☐ Yes ☐ No	Air dilution ☐ Yes ☐ No If yes, _____CFM
Forced Draft ☐ Yes ☐ No	Water cooled duct work ☐ Yes ☐ No
Other	
Inlet Volume _____ACFM @ _____°F _____% Moisture	Outlet Volume _____ACFM @ _____°F _____% Moisture

Describe the system in detail.

Section C - Air Cleaning Device (Continued) – *N/A*

3. Settling Chambers

Manufacturer	Volume of gas handled _____ACFM @ _____°F	Gas velocity (ft/sec.)

Length of chamber (ft.)	Width of chamber (ft.)	Height of chamber (ft.)	Number of trays

Water injection ☐ Yes ☐ No	Water injection rate (GPM)

Emissions Data

Inlet	Outlet	Removal Efficiency (%)

4. Inertial and Cyclone Collectors

Manufacturer	Type	Model No.
Pressure drop (in. of water)	Inlet volume _____ACFM @ _____°F	Outlet volume _____ACFM @ _____°F

Number of individual cyclone(s)	Outlet straightening vanes used? ☐ Yes ☐ No

Length of Cyclone(s) Cylinder (ft.)	Diameter of Cyclone(s) Cylinder (ft.)	Length of Cyclone(s) cone (ft.)

Inlet Diameter (ft.) or duct area ($ft.^2$) of cyclone(s)	Outlet Diameter (ft.) or duct area ($ft.^2$) of cyclone(s)

If a multi-clone or multi-tube unit is installed, will any of the individual cyclones or cyclone tubes be blanked or blocked off?

Describe any exhaust gas recirculation loop to be employed.

Attach particle size efficiency curve

Emissions Data

Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

5. Fabric Collector

Equipment Specifications

Manufacturer	Model No.	☐ Pressurized Design ☐ Suction Design
Number of Compartments	Number of Filters Per Compartment	Is Baghouse Insulated? ☐ Yes ☐ No

Can each compartment be isolated for repairs and/or filter replacement? ☐ Yes ☐ No

Are temperature controls provided? (Describe in detail) ☐ Yes ☐ No

Dew point at maximum moisture _____°F | Design inlet volume _____ SCFM

Type of Fabric

Material _____ ☐ Felted ☐ Membrane

Weight _____ oz/sq.yd ☐ Woven ☐ Others: List: _____

Thickness _____in ☐ Felted-Woven

Fabric permeability (clean) @ ½" water-Δ P _____ CFM/sq.ft.

Filter dimensions Length _____ Diameter/Width _____

Effective area per filter _____ | Maximum operating temperature (°F) _____

Effective air to cloth ratio Minimum _____ Maximum _____

Drawing of Fabric Filter

A sketch of the fabric filter showing all access doors, catwalks, ladders and exhaust ductwork, location of each pressure and temperature indicator should be attached.

Operation and Cleaning

Volume of gases handled _____ ACFM @ _____°F	Pressure drop across collector (in. of water). Describe the equipment to be used to monitor the pressure drop.

Type of filter cleaning

☐ Manual Cleaning ☐ Bag Collapse ☐ Reverse Air Jets

☐ Mechanical Shakers ☐ Sonic Cleaning ☐ Other: _____

☐ Pneumatic Shakers ☐ Reverse Air Flow

Describe the equipment provided if dry oil free air is required for collector operation

Cleaning Initiated By

☐ Timer Frequency if timer actuated _____

☐ Expected pressure drop range _____ in. of water ☐ Other Specify _____

Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.

Describe the warning/alarm system that protects against operation when the unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

6. Wet Collection Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Relative Particulate/Gas Velocity (ejector scrubbers only)

Describe the internal features (e.g., variable throat, gas/liquid diffusion plates, spray nozzles, liquid redistributors, bed limiters, etc.).

Describe pH monitoring and pH adjustment systems, if applicable.

Describe mist eliminator or separator (type, configuration, backflush capability, frequency).

Attach particulate size efficiency curve.

Operating Parameters

Inlet volume of gases handled _____ (ACFM) @ _____°F	Outlet volume of gases handled _____ (ACFM) @ _____ °F _____% Moisture

Liquid flow rates. Describe equipment provided to measure liquid flow rates to scrubber (e.g., quenching section, recirculating solution, makeup water, bleed flow, etc.)

Describe scrubber liquid supply system (amount of make-up and recirculating liquid, capacity of recirculating liquid system, etc.)

State pressure drop range (in water) across scrubber (e.g., venturi throat, packed bed, etc.) only. Describe the equipment provide to measure the pressure drop. Do not include duct or de-mister losses.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

7. Electrostatic Precipitator

Equipment Specifications

Manufacturer	Model No.	☐ Wet ☐ Dry ☐ Single-Stage ☐ Two-Stage

Gas distribution grids ☐ Yes ☐ No	Design Inlet Volume (SCFM) _____ Maximum operating temperature (°F) _____

Total collecting surface area _____ sq. ft. Collector plates size length _____ ft. x width _____ ft.

Number of fields _____ Number of collector plates/field _____

Spacing between collector plates _____ inches.

Maximum gas velocity _____ ft./sec. Minimum gas treatment time: _____ sec.

Total discharge electrode length _____ ft.

Number of discharge electrodes _____ Number of collecting electrode rappers _____

Rapper control ☐ Magnetic ☐ Pneumatic ☐ Other _____ Describe in detail

Operating Parameters

Inlet gas temperature (°F) _____ Outlet gas temperature (°F) _____	State pressure drop range (inches water gauge) across collector only _____ Describe the equipment
Volume of gas handled (ACFM) _____	Dust resistivity (ohm-cm). Will resistivity vary?

Power requirements

Number and size of Transformer Rectifier sets by electrical field

Field No.	No. of Sets	Each Transformer KVA	Each Rectifier KV Ave./Peak	Each Rectifier Ma DC

Current Density _____ Micro amperes/ft^2.	Corona Power _____ Watts/1000 ACFM	Corona Power Density _____ Watts/ft^2.

Will a flue gas conditioning system be employed? If yes, describe it.

Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

8. Adsorption Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Adsorbent charge per adsorber vessel and number of adsorber vessels

Length of Mass Transfer Zone (MTZ), supplied by the manufacturer based upon laboratory data.

Adsorber diameter (ft.) and area ft^2.)	Adsorption bed depth (ft.)

Adsorbent information

Adsorbent type and physical properties.

Working capacity of adsorbent (%)	Heel percent or unrecoverable solvent weight % in the adsorbent after regeneration.

Operating Parameters

Inlet volume of gases handled _____ (ACFM) @ _____ °F

Adsorption time per adsorption bed	Breakthrough capacity: Lbs. of solvent / 100 lbs. of adsorbent = _____
Vapor pressure of solvents at the inlet temperature	Available steam in pounds to regenerate carbon adsorber (if applicable)

Percent relative saturation of each solvent at the inlet temperature

Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

9. Absorption Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Tower height (ft.) and inside diameter (ft.)
Packing type and size (if applicable)	Height of packing (ft.) (if applicable)
Number of trays (if applicable)	Number of bubble caps (if applicable)

Configuration

☐ Counter-current ☐ Cross flow ☐ Cocurrent flow

Describe pH and/or other monitoring and controls.

Absorbent information

Absorbent type and concentration.	Retention time (sec.)

Attach equilibrium data for absorption (if applicable)

Attach any additional information regarding auxiliary equipment, absorption solution supply system (once through or recirculating, system capacity, etc.) to thoroughly evaluate the control equipment. Indicate the flow rates for makeup, bleed and recirculation.

Operating Parameters

Volume of gas handled (ACFM)	Inlet temperature (°F)	Pressure drop (in. of water) and liquid flow rate. Describe the monitoring equipment.

State operating range for pH and/or absorbent concentration in scrubber liquid.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

10. ☐ **Selective Catalytic Reduction (SCR)**
☐ **Selective Non-Catalytic Reduction (SNCR)**
☐ **Non-Selective Catalytic Reduction (NSCR)**

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Design operating temperature (°F)

Is the system equipped with process controls for proper mixing/control of the reducing agent in gas stream? If yes, give details.

Attach efficiency and other pertinent information (e.g., ammonia slip)

Operating Parameters

Volume of gases handled _____ (ACFM) @ _____ °F

Operating temperature range for the SCR/SNCR/NSCR system (°F) From _____°F To _____°F

Reducing agent used, if any	Oxidation catalyst used, if any

State expected range of usage rate and concentration.

Service life of catalyst	Ammonia slip (ppm)

Describe fully with a sketch giving locations of equipment, controls systems, important parameters and method of operation.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

11. Oxidizer/Afterburners

Equipment Specifications

Manufacturer	Type ☐ Thermal ☐ Catalytic	Model No.
Design Inlet Volume (SCFM)	Combustion chamber dimensions (length, cross-sectional area, effective chamber volume, etc.)	

Describe design features, which will ensure mixing in combustion chamber.

Describe method of preheating incoming gases (if applicable).	Describe heat exchanger system used for heat recovery (if applicable).

Catalyst used	Life of catalyst	Expected temperature rise across catalyst (°F)	Dimensions of bed (in inches). Height: _____ Diameter or Width: _____ Depth: _____

Are temperature sensing devices being provided to measure the temperature rise across the catalyst? ☐ Yes ☐ No

If yes, describe.

Describe any temperature sensing and/or recording devices (including specific location of temperature probe in a drawing or sketch.

Burner Information

Burner Manufacturer	Model No.	Fuel Used
Number and capacity of burners	Rated capacity (each)	Maximum capacity (each)

Describe the operation of the burner	Attach dimensioned diagram of afterburner

Operating Parameters

Inlet flow rate (ACFM) _____ @ _____°F	Outlet flow rate (ACFM) _____@ _____°F
State pressure drop range across catalytic bed (in. of water).	Describe the method adopted for regeneration or disposal of the used catalyst.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

12. Flares

Equipment Specifications

Manufacturer	Type ☐ Elevated flare ☐ Ground flare ☐ Other _____ Describe	Model No.
Design Volume (SCFM)	Dimensions of stack (ft.) Diameter _____ Height _____	
Residence time (sec.) and outlet temperature (°F)	Turn down ratio	Burner details

Describe the flare design (air/steam-assisted or nonassisted), essential auxiliaries including pilot flame monitor of proposed flare with a sketch.

Describe the operation of the flare's ignition system.

Describe the provisions to introduce auxiliary fuel to the flare.

Operation Parameters

Detailed composition of the waste gas	Heat content	Exit velocity
Maximum and average gas flow burned (ACFM)	Operating temperature (°F)	

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

13. Other Control Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Volume (SCFM)	Capacity

Describe pH monitoring and pH adjustment, if any.

Indicate the liquid flow rate and describe equipment provided to measure pressure drop and flow rate, if any.

Attach efficiency curve and/or other efficiency information.

Attach any additional date including auxiliary equipment and operation details to thoroughly evaluate the control equipment.

Operation Parameters

Volume of gas handled

_____ ACFM @ _____ °F _____ % Moisture

Describe fully giving important parameters and method of operation.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

14. Costs

Indicate cost associated with air cleaning device and its operating cost (attach documentation if necessary)

Device	Direct Cost	Indirect Cost	Total Cost	Annual Operating Cost

15. Miscellaneous

Describe in detail the removal, handling and disposal of dust, effluent, etc. from the air cleaning device including proposed methods of controlling fugitive emissions.

N/A

Attach manufacturer's performance guarantees and/or warranties for each of the major components of the control system (or complete system).

Engine is certified to meet the 40 CFR Part 60, Subpart IIII requirements.

Attach the maintenance schedule for the control equipment and any part of the process equipment that if in disrepair would increase air contaminant emissions.

N/A

Section D - Additional Information

Will the construction, modification, etc. of the sources covered by this application increase emissions from other sources at the facility? If so, describe and quantify.

No – emissions from other sources at the Facility will not be affected.

If this project is subject to any one of the following, attach a demonstration to show compliance with applicable standards.

a. Prevention of Significant Deterioration permit (PSD), 40 CFR 52? ☐ YES ☒ NO

b. New Source Review (NSR), 25 Pa. Code Chapter 127, Subchapter E? ☐ YES ☒ NO

c. New Source Performance Standards (NSPS), 40 CFR Part 60? ☒ YES ☐ NO
(If Yes, which subpart) ***Subpart IIII***

d. National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61? (If Yes, which subpart) _____ ☐ YES ☒ NO

e. Maximum Achievable Control Technology (MACT) 40 CFR Part 63? ☒ YES ☐ NO
(If Yes, which part) ***Subpart ZZZZ***

Attach a demonstration showing that the emissions from any new sources will be the minimum attainable through the use of best available technology (BAT).

Please refer to the application narrative.

Provide emission increases and decreases in allowable (or potential) and actual emissions within the last five (5) years for applicable PSD pollutant(s) if the facility is an existing major facility (PSD purposes).

N/A

Section D - Additional Information (Continued) – *N/A*

Indicate emission increases and decreases in tons per year (tpy), for volatile organic compounds (VOCs) and nitrogen oxides (NOx) for NSR applicability since January 1, 1991 or other applicable dates (see other applicable dates in instructions). The emissions increases include all emissions including stack, fugitive, material transfer, other emission generating activities, quantifiable emissions from exempted source(s), etc.

Permit number (if applicable)	Date issued	Indicate ***Yes*** or ***No*** if emission increases and decreases were used previously for netting	Source I. D. or Name	VOCs		NOx	
				Emission increases in potential to emit (tpy)	Creditable emission decreases in actual emissions (tpy)	Emission increases in potential to emit (tpy)	Creditable emission decreases in actual emissions (tpy)

If the source is subject to 25 Pa. Code Chapter 127, Subchapter E, New Source Review requirements,

a. Identify Emission Reduction Credits (ERCs) for emission offsets or demonstrate ability to obtain suitable ERCs for emission offsets.

b. Provide a demonstration that the lowest achievable emission rate (LAER) control techniques will be employed (if applicable).

c. Provide an analysis of alternate sites, sizes, production processes and environmental control techniques demonstrating that the benefits of the proposed source outweigh the environmental and social costs (if applicable).

Attach calculations and any additional information necessary to thoroughly evaluate compliance with all the applicable requirements of Article III and applicable requirements of the Clean Air Act adopted thereunder The Department may request additional information to evaluate the application such as a standby plan, a plan for air pollution emergencies, air quality modeling, etc.

Section E - Compliance Demonstration – *Refer to Addendum A Forms.*

Note: Complete this section if source is not a Title V facility. Title V facilities must complete Addendum A.[(a)]

Method of Compliance Type: Check all that apply and complete all appropriate sections below

☐ Monitoring ☐ Testing ☐ Reporting

☐ Recordkeeping ☐ Work Practice Standard

Monitoring:

a. Monitoring device type (Parameter, CEM, etc):

b. Monitoring device location:

c. Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Testing:

a. Reference Test Method: Citation

b. Reference Test Method: Description

Recordkeeping:

Describe what parameters will be recorded and the recording frequency:

Reporting:

a. Describe what is to be reported and frequency of reporting:

b. Reporting start date: _____

Work Practice Standard:

Describe each:

(a) The B. Braun Facility is a Title V Facility and therefore, in accordance with the form instructions, completed Addendum A forms.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM				
PM_{10}				
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----

Please refer to Appendix B – Emissions Inventory.

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number ***TBD***

List Source(s) or source ID exhausted to this stack:
TBD – 282 HP Fire Pump

% of flow exhausted to stack: ***100***

Stack height above grade (ft.) ***67' 5''***
Grade elevation (ft.) ***395***

Stack diameter (ft) or Outlet duct area (sq. ft.)
10 inches

f. Weather Cap ☒ YES ☐ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
425 ft.

Does stack height meet Good Engineering Practice (GEP)?
Yes

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions.

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Center of Facility	***40***	***38***	***29.88***	***75***	***26***	***50.23***

Stack exhaust
Volume ***1,453*** ACFM Temperature ***943*** °F Moisture ***Unknown*** %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
Refer to Appendix C

Exhauster (attach fan curves) ***N/A*** in. of water ***N/A*** HP @ ***N/A*** RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section G - Attachments

Number and list all attachments submitted with this application below:

Application Narrative
Appendix A – PADEP Application Forms
Appendix B – Emissions Inventory
Appendix C – Manufacturer Specification Sheets
Appendix D – Municipal Notification Letters

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.
750 kW Cummins EGen powered by a Cummins Model GTA50 SI RICE (or equivalent)

Manufacturer	Model No.	Number of Sources
Cummins (or equivalent)	***GTA50 (or equivalent)***	***1***
Source Designation	Maximum Capacity	Rated Capacity
TBD –750 kW Emergency Generator	***750 kW***	***750 kW***

Type of Material Processed
N/A

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	***7***	***365***	***500***

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)
N/A

Capacity (specify units) – *N/A*

Per Hour	Per Day	Per Week	Per Year

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	***7***	***365***	***500***

Seasonal variations (Months) From to

If variations exist, describe them
N/A

2. Fuel

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	***10,931*** SCFH	***5.47*** X 10^6 SCF	***Negligible*** grain/100 SCF	***N/A***	***1,020*** Btu/SCF
Gas (other) _____	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal _____	TPH	Tons	% by wt		Btu/lb
Other * _____					
_____					
_____					

*Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information (Continued)

3. Burner – *N/A*

Manufacturer	Type and Model No.	Number of Burners
Description:		
Rated Capacity	Maximum Capacity	

4. Process Storage Vessels – *N/A*

A. For Liquids:

Name of material stored		
Tank I.D. No.	Manufacturer	Date Installed
Maximum Pressure	Capacity (gallons/Meter^3)	
Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)		
Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)	
Type of Roof: Describe:		
Total Throughput Per Year	Number of fills per day (fill/day): Filling Rate (gal./min.): Duration of fill hr./fill):	

B. For Solids

Type: ☐ Silo ☐ Storage Bin ☐Other, Describe	Name of Material Stored	
Silo/Storage Bin I.D. No.	Manufacturer	Date Installed
State whether the material will be stored in loose or bags in silos	Capacity (Tons)	
Turn over per year in tons	Turn over per day in tons	
Describe fugitive dust control system for loading and handling operations		
Describe material handling system		

5. Request for Confidentiality

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☒ No
If yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information (Continued)

6. Miscellaneous Information

Attach flow diagram of process giving all (gaseous, liquid and solid) flow rates. Also, list all raw materials charged to process equipment, and the amounts charged (tons/hour, etc.) at rated capacity (give maximum, minimum and average charges describing fully expected variations in production rates). Indicate (on diagram) all points where contaminants are controlled (location of water sprays, collection hoods, or other pickup points, etc.). Describe collection hoods location, design, airflow and capture efficiency. Describe any restriction requested and how it will be monitored.

Refer to Appendix C for the manufacturer specification sheet.

Describe fully the facilities provided to monitor and to record process operating conditions, which may affect the emission of air contaminants. Show that they are reasonable and adequate.

A non-resettable hour meter will be installed on the emergency generator. The operating hours and type of operation will be recorded for each use of the emergency generator.

Describe each proposed modification to an existing source.

N/A – the emergency generator is a proposed source.

Identify and describe all fugitive emission points, all relief and emergency valves and any by-pass stacks.

Refer to Appendix C for the manufacturer specification sheet.

Describe how emissions will be minimized especially during start up, shut down, process upsets and/or disruptions.

The emergency generator will be operated according to the manufacturer's written instructions and with good operating practices for minimizing emissions.

Anticipated Milestones:

i. Expected commencement date of construction/reconstruction/installation: ***March 2019***
ii. Expected completion date of construction/reconstruction/installation: ***May 2021***
iii. Anticipated date of start-up: ***May 2021***

Section C - Air Cleaning Device – *N/A*

1. Precontrol Emissions*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM					
PM_{10}					
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling

Water quenching ☐ Yes ☐ No Water injection rate _____ GPM

Radiation and convection cooling ☐ Yes ☐ No	Air dilution ☐ Yes ☐ No If yes, _____CFM
Forced Draft ☐ Yes ☐ No	Water cooled duct work ☐ Yes ☐ No
Other	
Inlet Volume _____ACFM @ _____°F _____% Moisture	Outlet Volume _____ACFM @ _____°F _____% Moisture

Describe the system in detail.

Section C - Air Cleaning Device (Continued) – *N/A*

3. Settling Chambers

Manufacturer	Volume of gas handled _____ACFM @ _____°F	Gas velocity (ft/sec.)

Length of chamber (ft.)	Width of chamber (ft.)	Height of chamber (ft.)	Number of trays

Water injection ☐ Yes ☐ No	Water injection rate (GPM)

Emissions Data

Inlet	Outlet	Removal Efficiency (%)

4. Inertial and Cyclone Collectors

Manufacturer	Type	Model No.
Pressure drop (in. of water)	Inlet volume _____ACFM @ _____°F	Outlet volume _____ACFM @ _____°F

Number of individual cyclone(s)	Outlet straightening vanes used? ☐ Yes ☐ No

Length of Cyclone(s) Cylinder (ft.)	Diameter of Cyclone(s) Cylinder (ft.)	Length of Cyclone(s) cone (ft.)

Inlet Diameter (ft.) or duct area (ft.^{2}) of cyclone(s)	Outlet Diameter (ft.) or duct area (ft.^{2}) of cyclone(s)

If a multi-clone or multi-tube unit is installed, will any of the individual cyclones or cyclone tubes be blanked or blocked off?

Describe any exhaust gas recirculation loop to be employed.

Attach particle size efficiency curve

Emissions Data

Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

5. Fabric Collector

Equipment Specifications

Manufacturer	Model No.	☐ Pressurized Design ☐ Suction Design
Number of Compartments	Number of Filters Per Compartment	Is Baghouse Insulated? ☐ Yes ☐ No

Can each compartment be isolated for repairs and/or filter replacement? ☐ Yes ☐ No

Are temperature controls provided? (Describe in detail) ☐ Yes ☐ No

Dew point at maximum moisture _____°F | Design inlet volume _____ SCFM

Type of Fabric

Material _____ ☐ Felted ☐ Membrane

Weight _____ oz/sq.yd ☐ Woven ☐ Others: List: _____

Thickness _____in ☐ Felted-Woven

Fabric permeability (clean) @ ½" water-Δ P _____ CFM/sq.ft.

Filter dimensions Length _____ Diameter/Width _____

Effective area per filter _____ | Maximum operating temperature (°F) _____

Effective air to cloth ratio Minimum _____ Maximum _____

Drawing of Fabric Filter

A sketch of the fabric filter showing all access doors, catwalks, ladders and exhaust ductwork, location of each pressure and temperature indicator should be attached.

Operation and Cleaning

Volume of gases handled _____ ACFM @ _____°F	Pressure drop across collector (in. of water). Describe the equipment to be used to monitor the pressure drop.

Type of filter cleaning

☐ Manual Cleaning ☐ Bag Collapse ☐ Reverse Air Jets

☐ Mechanical Shakers ☐ Sonic Cleaning ☐ Other: _____

☐ Pneumatic Shakers ☐ Reverse Air Flow

Describe the equipment provided if dry oil free air is required for collector operation

Cleaning Initiated By

☐ Timer Frequency if timer actuated _____

☐ Expected pressure drop range _____ in. of water ☐ Other Specify _____

Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.

Describe the warning/alarm system that protects against operation when the unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

6. Wet Collection Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Relative Particulate/Gas Velocity (ejector scrubbers only)

Describe the internal features (e.g., variable throat, gas/liquid diffusion plates, spray nozzles, liquid redistributors, bed limiters, etc.).

Describe pH monitoring and pH adjustment systems, if applicable.

Describe mist eliminator or separator (type, configuration, backflush capability, frequency).

Attach particulate size efficiency curve.

Operating Parameters

Inlet volume of gases handled _____ (ACFM) @ _____°F	Outlet volume of gases handled _____ (ACFM) @ _____ °F _____% Moisture

Liquid flow rates. Describe equipment provided to measure liquid flow rates to scrubber (e.g., quenching section, recirculating solution, makeup water, bleed flow, etc.)

Describe scrubber liquid supply system (amount of make-up and recirculating liquid, capacity of recirculating liquid system, etc.)

State pressure drop range (in water) across scrubber (e.g., venturi throat, packed bed, etc.) only. Describe the equipment provide to measure the pressure drop. Do not include duct or de-mister losses.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

7. Electrostatic Precipitator

Equipment Specifications

Manufacturer	Model No.	☐ Wet ☐ Dry ☐ Single-Stage ☐ Two-Stage

Gas distribution grids ☐ Yes ☐ No

Design Inlet Volume (SCFM) _____

Maximum operating temperature (°F) _____

Total collecting surface area _____ sq. ft. Collector plates size length _____ ft. x width _____ ft.

Number of fields _____ Number of collector plates/field _____

Spacing between collector plates _____ inches.

Maximum gas velocity _____ ft./sec. Minimum gas treatment time: _____ sec.

Total discharge electrode length _____ ft.

Number of discharge electrodes _____ Number of collecting electrode rappers _____

Rapper control ☐ Magnetic ☐ Pneumatic ☐ Other _____ Describe in detail

Operating Parameters

Inlet gas temperature (°F) _____

Outlet gas temperature (°F) _____

State pressure drop range (inches water gauge) across collector only _____

Describe the equipment

Volume of gas handled (ACFM) _____

Dust resistivity (ohm-cm). Will resistivity vary?

Power requirements

Number and size of Transformer Rectifier sets by electrical field

Field No.	No. of Sets	Each Transformer KVA	Each Rectifier KV Ave./Peak	Each Rectifier Ma DC

Current Density	Corona Power	Corona Power Density
_____ Micro amperes/ft^2.	_____ Watts/1000 ACFM	_____ Watts/ft^2.

Will a flue gas conditioning system be employed? If yes, describe it.

Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

8. Adsorption Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Adsorbent charge per adsorber vessel and number of adsorber vessels

Length of Mass Transfer Zone (MTZ), supplied by the manufacturer based upon laboratory data.

Adsorber diameter (ft.) and area ft^2.)	Adsorption bed depth (ft.)

Adsorbent information

Adsorbent type and physical properties.

Working capacity of adsorbent (%)	Heel percent or unrecoverable solvent weight % in the adsorbent after regeneration.

Operating Parameters

Inlet volume of gases handled _____ (ACFM) @ _____ °F

Adsorption time per adsorption bed	Breakthrough capacity: Lbs. of solvent / 100 lbs. of adsorbent = _____
Vapor pressure of solvents at the inlet temperature	Available steam in pounds to regenerate carbon adsorber (if applicable)

Percent relative saturation of each solvent at the inlet temperature

Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

9. Absorption Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Tower height (ft.) and inside diameter (ft.)
Packing type and size (if applicable)	Height of packing (ft.) (if applicable)
Number of trays (if applicable)	Number of bubble caps (if applicable)

Configuration

☐ Counter-current ☐ Cross flow ☐ Cocurrent flow

Describe pH and/or other monitoring and controls.

Absorbent information

Absorbent type and concentration.	Retention time (sec.)

Attach equilibrium data for absorption (if applicable)

Attach any additional information regarding auxiliary equipment, absorption solution supply system (once through or recirculating, system capacity, etc.) to thoroughly evaluate the control equipment. Indicate the flow rates for makeup, bleed and recirculation.

Operating Parameters

Volume of gas handled (ACFM)	Inlet temperature (°F)	Pressure drop (in. of water) and liquid flow rate. Describe the monitoring equipment.

State operating range for pH and/or absorbent concentration in scrubber liquid.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

10. ☐ **Selective Catalytic Reduction (SCR)**
☐ **Selective Non-Catalytic Reduction (SNCR)**
☐ **Non-Selective Catalytic Reduction (NSCR)**

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Design operating temperature (°F)

Is the system equipped with process controls for proper mixing/control of the reducing agent in gas stream? If yes, give details.

Attach efficiency and other pertinent information (e.g., ammonia slip)

Operating Parameters

Volume of gases handled _____ (ACFM) @ _____ °F

Operating temperature range for the SCR/SNCR/NSCR system (°F) From _____°F To _____°F

Reducing agent used, if any	Oxidation catalyst used, if any

State expected range of usage rate and concentration.

Service life of catalyst	Ammonia slip (ppm)

Describe fully with a sketch giving locations of equipment, controls systems, important parameters and method of operation.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

11. Oxidizer/Afterburners

Equipment Specifications

Manufacturer	Type ☐ Thermal ☐ Catalytic	Model No.
Design Inlet Volume (SCFM)	Combustion chamber dimensions (length, cross-sectional area, effective chamber volume, etc.)	

Describe design features, which will ensure mixing in combustion chamber.

Describe method of preheating incoming gases (if applicable).	Describe heat exchanger system used for heat recovery (if applicable).

Catalyst used	Life of catalyst	Expected temperature rise across catalyst (°F)	Dimensions of bed (in inches). Height: _____ Diameter or Width: _____ Depth: _____

Are temperature sensing devices being provided to measure the temperature rise across the catalyst? ☐ Yes ☐ No

If yes, describe.

Describe any temperature sensing and/or recording devices (including specific location of temperature probe in a drawing or sketch.

Burner Information

Burner Manufacturer	Model No.	Fuel Used
Number and capacity of burners	Rated capacity (each)	Maximum capacity (each)

Describe the operation of the burner	Attach dimensioned diagram of afterburner

Operating Parameters

Inlet flow rate (ACFM) _____ @ _____°F	Outlet flow rate (ACFM) _____@ _____°F
State pressure drop range across catalytic bed (in. of water).	Describe the method adopted for regeneration or disposal of the used catalyst.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

12. Flares

Equipment Specifications

Manufacturer	Type ☐ Elevated flare ☐ Ground flare ☐ Other _____ Describe	Model No.
Design Volume (SCFM)	Dimensions of stack (ft.) Diameter _____ Height _____	
Residence time (sec.) and outlet temperature (°F)	Turn down ratio	Burner details

Describe the flare design (air/steam-assisted or nonassisted), essential auxiliaries including pilot flame monitor of proposed flare with a sketch.

Describe the operation of the flare's ignition system.

Describe the provisions to introduce auxiliary fuel to the flare.

Operation Parameters

Detailed composition of the waste gas	Heat content	Exit velocity
Maximum and average gas flow burned (ACFM)	Operating temperature (°F)	

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

13. Other Control Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Volume (SCFM)	Capacity

Describe pH monitoring and pH adjustment, if any.

Indicate the liquid flow rate and describe equipment provided to measure pressure drop and flow rate, if any.

Attach efficiency curve and/or other efficiency information.

Attach any additional date including auxiliary equipment and operation details to thoroughly evaluate the control equipment.

Operation Parameters

Volume of gas handled

_____ ACFM @ _____ °F _____ % Moisture

Describe fully giving important parameters and method of operation.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

14. Costs

Indicate cost associated with air cleaning device and its operating cost (attach documentation if necessary)

Device	Direct Cost	Indirect Cost	Total Cost	Annual Operating Cost

15. Miscellaneous

Describe in detail the removal, handling and disposal of dust, effluent, etc. from the air cleaning device including proposed methods of controlling fugitive emissions.

N/A

Attach manufacturer's performance guarantees and/or warranties for each of the major components of the control system (or complete system).

Engine is certified to meet the 40 CFR Part 60, Subpart JJJJ requirements.

Attach the maintenance schedule for the control equipment and any part of the process equipment that if in disrepair would increase air contaminant emissions.

N/A

Section D - Additional Information

Will the construction, modification, etc. of the sources covered by this application increase emissions from other sources at the facility? If so, describe and quantify.

No – emissions from other sources at the Facility will not be affected.

If this project is subject to any one of the following, attach a demonstration to show compliance with applicable standards.

a. Prevention of Significant Deterioration permit (PSD), 40 CFR 52? ☐ YES ☒ NO

b. New Source Review (NSR), 25 Pa. Code Chapter 127, Subchapter E? ☐ YES ☒ NO

c. New Source Performance Standards (NSPS), 40 CFR Part 60? ☒ YES ☐ NO
(If Yes, which subpart) ***Subpart JJJJ***

d. National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61? (If Yes, which subpart) _____ ☐ YES ☒ NO

e. Maximum Achievable Control Technology (MACT) 40 CFR Part 63? ☒ YES ☐ NO
(If Yes, which part) ***Subpart ZZZZ***

Attach a demonstration showing that the emissions from any new sources will be the minimum attainable through the use of best available technology (BAT).

Please refer to the application narrative.

Provide emission increases and decreases in allowable (or potential) and actual emissions within the last five (5) years for applicable PSD pollutant(s) if the facility is an existing major facility (PSD purposes).

N/A

Section D - Additional Information (Continued) – *N/A*

Indicate emission increases and decreases in tons per year (tpy), for volatile organic compounds (VOCs) and nitrogen oxides (NOx) for NSR applicability since January 1, 1991 or other applicable dates (see other applicable dates in instructions). The emissions increases include all emissions including stack, fugitive, material transfer, other emission generating activities, quantifiable emissions from exempted source(s), etc.

Permit number (if applicable)	Date issued	Indicate ***Yes*** or ***No*** if emission increases and decreases were used previously for netting	Source I. D. or Name	VOCs		NOx	
				Emission increases in potential to emit (tpy)	Creditable emission decreases in actual emissions (tpy)	Emission increases in potential to emit (tpy)	Creditable emission decreases in actual emissions (tpy)

If the source is subject to 25 Pa. Code Chapter 127, Subchapter E, New Source Review requirements,

a. Identify Emission Reduction Credits (ERCs) for emission offsets or demonstrate ability to obtain suitable ERCs for emission offsets.

b. Provide a demonstration that the lowest achievable emission rate (LAER) control techniques will be employed (if applicable).

c. Provide an analysis of alternate sites, sizes, production processes and environmental control techniques demonstrating that the benefits of the proposed source outweigh the environmental and social costs (if applicable).

Attach calculations and any additional information necessary to thoroughly evaluate compliance with all the applicable requirements of Article III and applicable requirements of the Clean Air Act adopted thereunder The Department may request additional information to evaluate the application such as a standby plan, a plan for air pollution emergencies, air quality modeling, etc.

Section E - Compliance Demonstration – *Refer to Addendum A Forms.*

Note: Complete this section if source is not a Title V facility. Title V facilities must complete Addendum A.[a]

Method of Compliance Type: Check all that apply and complete all appropriate sections below

☐ Monitoring ☐ Testing ☐ Reporting

☐ Recordkeeping ☐ Work Practice Standard

Monitoring:

a. Monitoring device type (Parameter, CEM, etc):

b. Monitoring device location:

c. Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Testing:

a. Reference Test Method: Citation

b. Reference Test Method: Description

Recordkeeping:

Describe what parameters will be recorded and the recording frequency:

Reporting:

a. Describe what is to be reported and frequency of reporting:

b. Reporting start date: _____

Work Practice Standard:

Describe each:

[a] The B. Braun Facility is a Title V Facility and therefore, in accordance with the form instructions, completed Addendum A forms.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM				
PM_{10}				
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----

Please refer to Appendix B – Emissions Inventory.

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number ***TBD***

List Source(s) or source ID exhausted to this stack:
TBD – 750 kW Emergency Generator

% of flow exhausted to stack: ***100***

Stack height above grade (ft.) ***57' 7''***
Grade elevation (ft.) ***393.75***

Stack diameter (ft) or Outlet duct area (sq. ft.)
14 inches

f. Weather Cap
☒ YES ☐ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
425 ft.

Does stack height meet Good Engineering Practice (GEP)?
Yes

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions.

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Center of Facility	***40***	***38***	***29.88***	***75***	***26***	***50.23***

Stack exhaust
Volume ***6,062*** ACFM Temperature ***1,242*** °F Moisture ***Unknown*** %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
Refer to Appendix C

Exhauster (attach fan curves) ***N/A*** in. of water ***N/A*** HP @ ***N/A*** RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section G - Attachments

Number and list all attachments submitted with this application below:

Application Narrative
Appendix A – PADEP Application Forms
Appendix B – Emissions Inventory
Appendix C – Manufacturer Specification Sheets
Appendix D – Municipal Notifications Letters

Section B - Processes Information

1. Source Information

Source Description (give type, use, raw materials, product, etc). Attach additional sheets as necessary.

Three 2,849 gallons per minute (GPM) cooling towers

Manufacturer	Model No.	Number of Sources
Marley (or equivalent)	***NC8414YAN3 (or equivalent)***	***1 (Including three cells)***
Source Designation	Maximum Capacity	Rated Capacity
TBD – 2 Cooling Towers	***2,849 GPM (each)***	***2,849 GPM (each)***

Type of Material Processed
N/A

Maximum Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	***7***	***365***	***8,760***

Operational restrictions existing or requested, if any (e.g., bottlenecks or voluntary restrictions to limit PTE)

Capacity (specify units)

Per Hour	Per Day	Per Week	Per Year
170,940 gal (each unit)	***4,102,560 gal***	***28,717,920 gal***	***~1,497 Million Gal***

Operating Schedule

Hours/Day	Days/Week	Days/Year	Hours/Year
24	***7***	***365***	***8,760***

Seasonal variations (Months) From ***N/A*** to

If variations exist, describe them
N/A

2. Fuel – *N/A*

Type	Quantity Hourly	Annually	Sulfur	% Ash (Weight)	BTU Content
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Oil Number _____	GPH @ 60°F	X 10^3 Gal	% by wt		Btu/Gal. & Lbs./Gal. @ 60 °F
Natural Gas	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Gas (other) _____	SCFH	X 10^6 SCF	grain/100 SCF		Btu/SCF
Coal _____	TPH	Tons	% by wt		Btu/lb
Other * _____					
_____					
_____					

*Note: Describe and furnish information separately for other fuels in Addendum B.

Section B - Processes Information (Continued)

3. Burner – *N/A*

Manufacturer	Type and Model No.	Number of Burners
Description:		
Rated Capacity	Maximum Capacity	

4. Process Storage Vessels – *N/A*

A. For Liquids:

Name of material stored		
Tank I.D. No.	Manufacturer	Date Installed
Maximum Pressure	Capacity (gallons/Meter^3)	
Type of relief device (pressure set vent/conservation vent/emergency vent/open vent)		
Relief valve/vent set pressure (psig)	Vapor press. of liquid at storage temp. (psia/kPa)	
Type of Roof: Describe:		
Total Throughput Per Year	Number of fills per day (fill/day): Filling Rate (gal./min.): Duration of fill hr./fill):	

B. For Solids

Type: ☐ Silo ☐ Storage Bin ☐Other, Describe	Name of Material Stored	
Silo/Storage Bin I.D. No.	Manufacturer	Date Installed
State whether the material will be stored in loose or bags in silos	Capacity (Tons)	
Turn over per year in tons	Turn over per day in tons	
Describe fugitive dust control system for loading and handling operations		
Describe material handling system		

5. Request for Confidentiality

Do you request any information on this application to be treated as "Confidential"? ☐ Yes ☒ No
If yes, include justification for confidentiality. Place such information on separate pages marked **"confidential"**.

Section B - Processes Information (Continued)

6. Miscellaneous Information

Attach flow diagram of process giving all (gaseous, liquid and solid) flow rates. Also, list all raw materials charged to process equipment, and the amounts charged (tons/hour, etc.) at rated capacity (give maximum, minimum and average charges describing fully expected variations in production rates). Indicate (on diagram) all points where contaminants are controlled (location of water sprays, collection hoods, or other pickup points, etc.). Describe collection hoods location, design, airflow and capture efficiency. Describe any restriction requested and how it will be monitored.

Refer to Appendix C for the manufacturer specification sheet.

Describe fully the facilities provided to monitor and to record process operating conditions, which may affect the emission of air contaminants. Show that they are reasonable and adequate.

Water chemistry will be monitored.

Describe each proposed modification to an existing source.

N/A – the cooling towers are proposed sources.

Identify and describe all fugitive emission points, all relief and emergency valves and any by-pass stacks.

Refer to Appendix C for the manufacturer specification sheet.

Describe how emissions will be minimized especially during start up, shut down, process upsets and/or disruptions.

Drift eliminators with an efficiency of 0.005% will be incorporated into the cooling tower design to decrease the amount and size of cooling tower water droplets that are carried out with the exhaust from the cooling tower system. In addition, the cooling towers will be operated according to the manufacturer's instructions and with good operating practices, including periodic cleaning of the tower and drift eliminator cells, to minimize emissions.

Anticipated Milestones:

i. Expected commencement date of construction/reconstruction/installation: ***March 2019***
ii. Expected completion date of construction/reconstruction/installation: ***May 2021***
iii. Anticipated date of start-up: ***May 2021***

Section C - Air Cleaning Device – *N/A*

1. Precontrol Emissions*

Pollutant	Maximum Emission Rate				Calculation/ Estimation Method
	Specify Units	Pounds/Hour	Hours/Year	Tons/Year	
PM					
PM_{10}					
SO_x					
CO					
NO_x					
VOC					
Others: (e.g., HAPs)	-----	-----	-----	-----	-----

* These emissions must be calculated based on the requested operating schedule and/or process rate, e.g., operating schedule for maximum limits or restricted hours of operation and/or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Gas Cooling

Water quenching ☐ Yes ☐ No Water injection rate _____ GPM

Radiation and convection cooling ☐ Yes ☐ No	Air dilution ☐ Yes ☐ No If yes, _____CFM
Forced Draft ☐ Yes ☐ No	Water cooled duct work ☐ Yes ☐ No
Other	
Inlet Volume _____ACFM @ _____°F _____% Moisture	Outlet Volume _____ACFM @ _____°F _____% Moisture

Describe the system in detail.

Section C - Air Cleaning Device (Continued) – *N/A*

3. Settling Chambers

Manufacturer	Volume of gas handled _____ACFM @ _____°F	Gas velocity (ft/sec.)

Length of chamber (ft.)	Width of chamber (ft.)	Height of chamber (ft.)	Number of trays

Water injection ☐ Yes ☐ No	Water injection rate (GPM)

Emissions Data

Inlet	Outlet	Removal Efficiency (%)

4. Inertial and Cyclone Collectors

Manufacturer	Type	Model No.
Pressure drop (in. of water)	Inlet volume _____ACFM @ _____°F	Outlet volume _____ACFM @ _____°F

Number of individual cyclone(s)	Outlet straightening vanes used? ☐ Yes ☐ No

Length of Cyclone(s) Cylinder (ft.)	Diameter of Cyclone(s) Cylinder (ft.)	Length of Cyclone(s) cone (ft.)

Inlet Diameter (ft.) or duct area (ft.^{2}) of cyclone(s)	Outlet Diameter (ft.) or duct area (ft.^{2}) of cyclone(s)

If a multi-clone or multi-tube unit is installed, will any of the individual cyclones or cyclone tubes be blanked or blocked off?

Describe any exhaust gas recirculation loop to be employed.

Attach particle size efficiency curve

Emissions Data

Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

5. Fabric Collector

Equipment Specifications

Manufacturer	Model No.	☐ Pressurized Design ☐ Suction Design
Number of Compartments	Number of Filters Per Compartment	Is Baghouse Insulated? ☐ Yes ☐ No

Can each compartment be isolated for repairs and/or filter replacement? ☐ Yes ☐ No

Are temperature controls provided? (Describe in detail) ☐ Yes ☐ No

Dew point at maximum moisture _____°F | Design inlet volume _____ SCFM

Type of Fabric

Material _____ ☐ Felted ☐ Membrane

Weight _____ oz/sq.yd ☐ Woven ☐ Others: List: _____

Thickness _____in ☐ Felted-Woven

Fabric permeability (clean) @ ½" water-Δ P _____ CFM/sq.ft.

Filter dimensions Length _____ Diameter/Width _____

Effective area per filter _____ | Maximum operating temperature (°F) _____

Effective air to cloth ratio Minimum _____ Maximum _____

Drawing of Fabric Filter

A sketch of the fabric filter showing all access doors, catwalks, ladders and exhaust ductwork, location of each pressure and temperature indicator should be attached.

Operation and Cleaning

Volume of gases handled _____ ACFM @ _____°F	Pressure drop across collector (in. of water). Describe the equipment to be used to monitor the pressure drop.

Type of filter cleaning

☐ Manual Cleaning ☐ Bag Collapse ☐ Reverse Air Jets

☐ Mechanical Shakers ☐ Sonic Cleaning ☐ Other: _____

☐ Pneumatic Shakers ☐ Reverse Air Flow

Describe the equipment provided if dry oil free air is required for collector operation

Cleaning Initiated By

☐ Timer Frequency if timer actuated _____

☐ Expected pressure drop range _____ in. of water ☐ Other Specify _____

Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.

Describe the warning/alarm system that protects against operation when the unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

6. Wet Collection Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Relative Particulate/Gas Velocity (ejector scrubbers only)

Describe the internal features (e.g., variable throat, gas/liquid diffusion plates, spray nozzles, liquid redistributors, bed limiters, etc.).

Describe pH monitoring and pH adjustment systems, if applicable.

Describe mist eliminator or separator (type, configuration, backflush capability, frequency).

Attach particulate size efficiency curve.

Operating Parameters

Inlet volume of gases handled _____ (ACFM) @ _____°F	Outlet volume of gases handled _____ (ACFM) @ _____ °F _____% Moisture

Liquid flow rates. Describe equipment provided to measure liquid flow rates to scrubber (e.g., quenching section, recirculating solution, makeup water, bleed flow, etc.)

Describe scrubber liquid supply system (amount of make-up and recirculating liquid, capacity of recirculating liquid system, etc.)

State pressure drop range (in water) across scrubber (e.g., venturi throat, packed bed, etc.) only. Describe the equipment provide to measure the pressure drop. Do not include duct or de-mister losses.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

7. Electrostatic Precipitator

Equipment Specifications

Manufacturer	Model No.	☐ Wet ☐ Dry ☐ Single-Stage ☐ Two-Stage

Gas distribution grids ☐ Yes ☐ No

Design Inlet Volume (SCFM) _____

Maximum operating temperature (°F) _____

Total collecting surface area _____ sq. ft. Collector plates size length _____ ft. x width _____ ft.

Number of fields _____ Number of collector plates/field _____

Spacing between collector plates _____ inches.

Maximum gas velocity _____ ft./sec. Minimum gas treatment time: _____ sec.

Total discharge electrode length _____ ft.

Number of discharge electrodes _____ Number of collecting electrode rappers _____

Rapper control ☐ Magnetic ☐ Pneumatic ☐ Other _____ Describe in detail

Operating Parameters

Inlet gas temperature (°F) _____

Outlet gas temperature (°F) _____

State pressure drop range (inches water gauge) across collector only _____

Describe the equipment

Volume of gas handled (ACFM) _____

Dust resistivity (ohm-cm). Will resistivity vary?

Power requirements

Number and size of Transformer Rectifier sets by electrical field

Field No.	No. of Sets	Each Transformer KVA	Each Rectifier KV Ave./Peak	Each Rectifier Ma DC

Current Density	Corona Power	Corona Power Density
_____ Micro amperes/ft^2.	_____ Watts/1000 ACFM	_____ Watts/ft^2.

Will a flue gas conditioning system be employed? If yes, describe it.

Does air cleaning device employ hopper heaters, hopper vibrators or hopper level detectors? If yes, describe.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

8. Adsorption Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Adsorbent charge per adsorber vessel and number of adsorber vessels

Length of Mass Transfer Zone (MTZ), supplied by the manufacturer based upon laboratory data.

Adsorber diameter (ft.) and area ft^2.)	Adsorption bed depth (ft.)

Adsorbent information

Adsorbent type and physical properties.

Working capacity of adsorbent (%)	Heel percent or unrecoverable solvent weight % in the adsorbent after regeneration.

Operating Parameters

Inlet volume of gases handled _____ (ACFM) @ _____ °F

Adsorption time per adsorption bed	Breakthrough capacity: Lbs. of solvent / 100 lbs. of adsorbent = _____
Vapor pressure of solvents at the inlet temperature	Available steam in pounds to regenerate carbon adsorber (if applicable)

Percent relative saturation of each solvent at the inlet temperature

Attach any additional data including auxiliary equipment and operation details to thoroughly evaluate the control equipment.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

9. Absorption Equipment

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Tower height (ft.) and inside diameter (ft.)
Packing type and size (if applicable)	Height of packing (ft.) (if applicable)
Number of trays (if applicable)	Number of bubble caps (if applicable)

Configuration

☐ Counter-current ☐ Cross flow ☐ Cocurrent flow

Describe pH and/or other monitoring and controls.

Absorbent information

Absorbent type and concentration.	Retention time (sec.)

Attach equilibrium data for absorption (if applicable)

Attach any additional information regarding auxiliary equipment, absorption solution supply system (once through or recirculating, system capacity, etc.) to thoroughly evaluate the control equipment. Indicate the flow rates for makeup, bleed and recirculation.

Operating Parameters

Volume of gas handled (ACFM)	Inlet temperature (°F)	Pressure drop (in. of water) and liquid flow rate. Describe the monitoring equipment.

State operating range for pH and/or absorbent concentration in scrubber liquid.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

10. ☐ **Selective Catalytic Reduction (SCR)**
☐ **Selective Non-Catalytic Reduction (SNCR)**
☐ **Non-Selective Catalytic Reduction (NSCR)**

Equipment Specifications

Manufacturer	Type	Model No.

Design Inlet Volume (SCFM)	Design operating temperature (°F)

Is the system equipped with process controls for proper mixing/control of the reducing agent in gas stream? If yes, give details.

Attach efficiency and other pertinent information (e.g., ammonia slip)

Operating Parameters

Volume of gases handled _____ (ACFM) @ _____ °F

Operating temperature range for the SCR/SNCR/NSCR system (°F) From _____°F To _____°F

Reducing agent used, if any	Oxidation catalyst used, if any

State expected range of usage rate and concentration.

Service life of catalyst	Ammonia slip (ppm)

Describe fully with a sketch giving locations of equipment, controls systems, important parameters and method of operation.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

11. Oxidizer/Afterburners

Equipment Specifications

Manufacturer	Type ☐ Thermal ☐ Catalytic	Model No.
Design Inlet Volume (SCFM)	Combustion chamber dimensions (length, cross-sectional area, effective chamber volume, etc.)	

Describe design features, which will ensure mixing in combustion chamber.

Describe method of preheating incoming gases (if applicable).	Describe heat exchanger system used for heat recovery (if applicable).

Catalyst used	Life of catalyst	Expected temperature rise across catalyst (°F)	Dimensions of bed (in inches). Height: _____ Diameter or Width: _____ Depth: _____

Are temperature sensing devices being provided to measure the temperature rise across the catalyst? ☐ Yes ☐ No

If yes, describe.

Describe any temperature sensing and/or recording devices (including specific location of temperature probe in a drawing or sketch.

Burner Information

Burner Manufacturer	Model No.	Fuel Used
Number and capacity of burners	Rated capacity (each)	Maximum capacity (each)

Describe the operation of the burner	Attach dimensioned diagram of afterburner

Operating Parameters

Inlet flow rate (ACFM) _____ @ _____°F	Outlet flow rate (ACFM) _____@ _____°F
State pressure drop range across catalytic bed (in. of water).	Describe the method adopted for regeneration or disposal of the used catalyst.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued) – *N/A*

12. Flares

Equipment Specifications

Manufacturer	Type ☐ Elevated flare ☐ Ground flare ☐ Other _____ Describe	Model No.
Design Volume (SCFM)	Dimensions of stack (ft.) Diameter _____ Height _____	
Residence time (sec.) and outlet temperature (°F)	Turn down ratio	Burner details

Describe the flare design (air/steam-assisted or nonassisted), essential auxiliaries including pilot flame monitor of proposed flare with a sketch.

Describe the operation of the flare's ignition system.

Describe the provisions to introduce auxiliary fuel to the flare.

Operation Parameters

Detailed composition of the waste gas	Heat content	Exit velocity
Maximum and average gas flow burned (ACFM)	Operating temperature (°F)	

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Section C - Air Cleaning Device (Continued)

13. Other Control Equipment – *Drift Eliminators*

Equipment Specifications

Manufacturer	Type	Model No.
Marley (or equivalent)	***TBD***	***TBD***

Design Volume (SCFM)	Capacity
N/A	***2,849 GPM (each)***

Describe pH monitoring and pH adjustment, if any.
N/A

Indicate the liquid flow rate and describe equipment provided to measure pressure drop and flow rate, if any.
N/A

Attach efficiency curve and/or other efficiency information.
N/A

Attach any additional date including auxiliary equipment and operation details to thoroughly evaluate the control equipment.
N/A

Operation Parameters

Volume of gas handled ***N/A***

_____ ACFM @ _____ °F _____ % Moisture

Describe fully giving important parameters and method of operation.

Water Chemistry will be monitored.

Describe the warning/alarm system that protects against operation when unit is not meeting design requirements.

Emissions Data

Pollutant	Inlet	Outlet	Removal Efficiency (%)

Please refer to Appendix B – Emissions Inventory.

Section C - Air Cleaning Device (Continued)

14. Costs – *N/A*

Indicate cost associated with air cleaning device and its operating cost (attach documentation if necessary)

Device	Direct Cost	Indirect Cost	Total Cost	Annual Operating Cost
Drift Eliminators	***TBD***	***TBD***	***TBD***	***TBD***

15. Miscellaneous

Describe in detail the removal, handling and disposal of dust, effluent, etc. from the air cleaning device including proposed methods of controlling fugitive emissions.

N/A

Attach manufacturer's performance guarantees and/or warranties for each of the major components of the control system (or complete system).

Drift eliminators with an efficiency of 0.005% will be incorporated into the cooling tower design to decrease the amount and size of cooling tower water droplets that are carried out with the exhaust from the cooling tower system. In addition, the cooling towers will be operated according to the manufacturer's instructions and with good operating practices, including periodic cleaning of the tower and drift eliminator cells, to minimize emissions.

Attach the maintenance schedule for the control equipment and any part of the process equipment that if in disrepair would increase air contaminant emissions.

B. Braun will develop a maintenance schedule in accordance with manufacturer's specifications.

Section D - Additional Information

Will the construction, modification, etc. of the sources covered by this application increase emissions from other sources at the facility? If so, describe and quantify.

No – emissions from other sources at the Facility will not be affected.

If this project is subject to any one of the following, attach a demonstration to show compliance with applicable standards.

a. Prevention of Significant Deterioration permit (PSD), 40 CFR 52? ☐ YES ☒ NO

b. New Source Review (NSR), 25 Pa. Code Chapter 127, Subchapter E? ☐ YES ☒ NO

c. New Source Performance Standards (NSPS), 40 CFR Part 60? ☐ YES ☒ NO
(If Yes, which subpart) _____

d. National Emissions Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61? (If Yes, which subpart) _____ ☐ YES ☒ NO

e. Maximum Achievable Control Technology (MACT) 40 CFR Part 63? ☐ YES ☒ NO
(If Yes, which part) _____

Attach a demonstration showing that the emissions from any new sources will be the minimum attainable through the use of best available technology (BAT).

Please refer to the application narrative.

Provide emission increases and decreases in allowable (or potential) and actual emissions within the last five (5) years for applicable PSD pollutant(s) if the facility is an existing major facility (PSD purposes).

N/A

Section D - Additional Information (Continued) – *N/A*

Indicate emission increases and decreases in tons per year (tpy), for volatile organic compounds (VOCs) and nitrogen oxides (NOx) for NSR applicability since January 1, 1991 or other applicable dates (see other applicable dates in instructions). The emissions increases include all emissions including stack, fugitive, material transfer, other emission generating activities, quantifiable emissions from exempted source(s), etc.

Permit number (if applicable)	Date issued	Indicate ***Yes*** or ***No*** if emission increases and decreases were used previously for netting	Source I. D. or Name	**VOCs**		**NOx**	
				Emission increases in potential to emit (tpy)	Creditable emission decreases in actual emissions (tpy)	Emission increases in potential to emit (tpy)	Creditable emission decreases in actual emissions (tpy)

If the source is subject to 25 Pa. Code Chapter 127, Subchapter E, New Source Review requirements,

a. Identify Emission Reduction Credits (ERCs) for emission offsets or demonstrate ability to obtain suitable ERCs for emission offsets.

b. Provide a demonstration that the lowest achievable emission rate (LAER) control techniques will be employed (if applicable).

c. Provide an analysis of alternate sites, sizes, production processes and environmental control techniques demonstrating that the benefits of the proposed source outweigh the environmental and social costs (if applicable).

Attach calculations and any additional information necessary to thoroughly evaluate compliance with all the applicable requirements of Article III and applicable requirements of the Clean Air Act adopted thereunder The Department may request additional information to evaluate the application such as a standby plan, a plan for air pollution emergencies, air quality modeling, etc.

Section E - Compliance Demonstration – *Refer to Addendum A Forms.*

Note: Complete this section if source is not a Title V facility. Title V facilities must complete Addendum A. [(a)]

Method of Compliance Type: Check all that apply and complete all appropriate sections below

☐ Monitoring ☐ Testing ☐ Reporting

☐ Recordkeeping ☐ Work Practice Standard

Monitoring:

a. Monitoring device type (Parameter, CEM, etc):

b. Monitoring device location:

c. Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Testing:

a. Reference Test Method: Citation

b. Reference Test Method: Description

Recordkeeping:

Describe what parameters will be recorded and the recording frequency:

Reporting:

a. Describe what is to be reported and frequency of reporting:

b. Reporting start date: _____

Work Practice Standard:

Describe each:

(a) The B. Braun Facility is a Title V Facility and therefore, in accordance with the form instructions, completed Addendum A forms.

Section F - Flue and Air Contaminant Emission

1. Estimated Atmospheric Emissions*

Pollutant	Maximum emission rate			Calculation/ Estimation Method
	specify units	lbs/hr	tons/yr.	
PM				
PM_{10}				
SO_x				
CO				
NO_x				
VOC				
Others: (e.g., HAPs)	-----	-----	-----	-----

Please refer to Appendix B – Emissions Inventory.

* These emissions must be calculated based on the requested operating schedule and/or process rate e.g., operating schedule for maximum limits or restricted hours of operation and /or restricted throughput. Describe how the emission values were determined. Attach calculations.

2. Stack and Exhauster

Stack Designation/Number ***TBD***

List Source(s) or source ID exhausted to this stack:
TBD – 3 Cooling Towers

% of flow exhausted to stack: ***100***

Stack height above grade (ft.) ***67' 5''***
Grade elevation (ft.) ***393.75***

Stack diameter (ft) or Outlet duct area (sq. ft.)
12 ft.

f. Weather Cap
☐ YES ☒ NO

Distance of discharge to nearest property line (ft.). Locate on topographic map.
425 ft.

Does stack height meet Good Engineering Practice (GEP)?
Yes

If modeling (estimating) of ambient air quality impacts is needed, attach a site plan with buildings and their dimensions and other obstructions.

Location of stack** Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Center of Facility	***40***	***38***	***29.88***	***75***	***26***	***50.23***

Stack exhaust
Volume ***709,600*** CFM Temperature ***89*** °F Moisture ***75 (assumed)*** %

Indicate on an attached sheet the location of sampling ports with respect to exhaust fan, breeching, etc. Give all necessary dimensions.
Refer to Appendix C

Exhauster (attach fan curves) ***N/A*** in. of water ***N/A*** HP @ ***N/A*** RPM.

** If the data and collection method codes differ from those provided on the General Information Form-Authorization Application, provide the additional detail required by that form on a separate form.

Section G - Attachments

Number and list all attachments submitted with this application below:

Application Narrative
Appendix A – PADEP Application Forms
Appendix B – Emissions Inventory
Appendix C – Manufacturer Specification Sheets
Appendix D – Municipal Notification Letters

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Two 21.0 MMBtu/hr Boilers
Addendum A: Source Applicable Requirements

Describe and cite all applicable requirements pertaining to this source.
Note: A Method of Compliance Worksheet (Addendum 1) must be completed for each requirement listed.

Citation Number	Citation Limitation	Limitation Used
40 CFR §60.48c(a)	*Submit an initial notification.*	*See Citation Limitation*
40 CFR §60.48c(g)	*Record and maintain records of the amount of natural gas combusted during each calendar month.*	*See Citation Limitation*
40 CFR §60.48c(i)	*All records required shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.*	*See Citation Limitation*
25 Pa. Code §§123.41 and 123.42	*Limit visible emissions to 20% for a period or periods aggregating more than three minutes in any one hour, and 60% at any time.*	*See Citation Limitation*
25 Pa. Code §123.22(c)	*3 lb/MMBtu SO_2 over a 1-hour period*	*See Citation Limitation*
25 Pa. Code §123.11(a)(1)	*0.4 lb/MMBtu PM*	*See Citation Limitation*
25 Pa. Code §127.12(a)(5)	*BAT for NO_X (0.049 lb/MMBtu)*	*See Citation Limitation*
25 Pa. Code §127.12(a)(10)	*Good operating practices*	*See Citation Limitation*

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Addendum 1
Method Of Compliance Worksheet

SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id:	*23-2116774*	**Firm Name:**	*B. Braun Medical, Inc.*
Plant Code:	*1*	**Plant Name:**	*B. Braun Medical, Inc. – Allentown*

Applicable Requirement for: (please check only one box below)

☐ **The entire site**

☐ **A group of sources, Group ID:**

☒ **A single source, Unit ID:** *TBD – Two 21.0 MMBtu/hr Boilers*

☐ **Alternative Scenario, Scenario Name:**

Citation #: *40 CFR Part 60, Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☒ **Monitoring** ☐ **Testing** ☒ **Reporting**

☒ **Record Keeping** ☐ **Work Practice Standard**

Section 2: Monitoring

1. **Monitoring device type (stack test, CEM, etc.):** *Fuel flow meter*
2. **Monitoring device location:** *Prior to burner*

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Fuel flow will be monitored.

3. **How will data be reported:** *N/A*

Section 3: Testing – N/A

1. Reference Test Method Description:

2. Reference Test Method Citation:

Section 4: Record Keeping

Describe what parameters will be recorded and the frequency of recording:

Record and maintain records of the amount of natural gas combusted during each calendar month. All records required shall be maintained by the owner or operator of the affected facility for a period of two years following the date of such record.

Section 5: Reporting

Describe what is to be reported and the frequency of reporting:

Per 40 CFR §60.48c(a), submit notification of the date of construction or reconstruction and actual startup, as provided by 40 CFR §60.7.

1. Reporting start date: ***Per 40 CFR §60.7, notification of construction commencement must be postmarked no later than 30 days after such date and notification of actual start-up must be post marked within 15 days of that date.***

Section 6: Work Practice Standard – N/A

Describe any work practice standards:

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Addendum 1
Method Of Compliance Worksheet

SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id:	*23-2116774*	**Firm Name:**	*B. Braun Medical, Inc.*
Plant Code:	*1*	**Plant Name:**	*B. Braun Medical, Inc. – Allentown*

Applicable Requirement for: (please check only one box below)

☐ **The entire site**

☐ **A group of sources, Group ID:**

☒ **A single source, Unit ID:** *TBD – Two 21.0 MMBtu/hr Boilers*

☐ **Alternative Scenario, Scenario Name:**

Citation #: *25 Pa. Code Chapter 123 – Standards for Contaminants (PM, SO_2, Visible Emissions)*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☒ **Monitoring** ☐ **Testing** ☐ **Reporting**

☒ **Record Keeping** ☒ **Work Practice Standard**

Section 2: Monitoring

1. **Monitoring device type (stack test, CEM, etc.):** *N/A*
2. **Monitoring device location:** *N/A*

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Visual determination of fugitive emissions via U.S. EPA Reference Method 22

3. **How will data be reported:** *N/A*

Section 3: Testing – N/A

1. Reference Test Method Description:

2. Reference Test Method Citation:

Section 4: Record Keeping

Describe what parameters will be recorded and the frequency of recording:

To demonstrate compliance with the emission limits, B. Braun shall keep copies of each vendor guarantees for emissions and a log of visible emissions observations.

Section 5: Reporting – N/A

Describe what is to be reported and the frequency of reporting:

1. Reporting start date:

Section 6: Work Practice Standard

Describe any work practice standards:

Compliance with the visible emissions standard will be ensured based on good operating and maintenance practices.
Compliance with the sulfur standard will be ensured with the use of natural gas which contains only negligible amounts of sulfur.

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BUREAU OF AIR QUALITY

Addendum 1
Method Of Compliance Worksheet

SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id:	*23-2116774*	**Firm Name:**	*B. Braun Medical, Inc.*
Plant Code:	*1*	**Plant Name:**	*B. Braun Medical, Inc. – Allentown*

Applicable Requirement for: (please check only one box below)

☐ **The entire site**

☐ **A group of sources, Group ID:**

☒ **A single source, Unit ID:** *TBD – Two 21.0 MMBtu/hr Boilers*

☐ **Alternative Scenario, Scenario Name:**

Citation #: *25 Pa. Code §127.12(a)(5) and §127.12(a)(10)*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☐ **Monitoring** ☐ **Testing** ☐ **Reporting**

☐ **Record Keeping** ☒ **Work Practice Standard**

Section 2: Monitoring – N/A

1. **Monitoring device type (stack test, CEM, etc.):**
2. **Monitoring device location:**

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

3. **How will data be reported:**

Section 3: Testing – N/A

1. **Reference Test Method Description:**
2. **Reference Test Method Citation:**

Section 4: Record Keeping – N/A

Describe what parameters will be recorded and the frequency of recording:

Section 5: Reporting – N/A

Describe what is to be reported and the frequency of reporting:

1. **Reporting start date:**

Section 6: Work Practice Standard

Describe any work practice standards:

Compliance with good operating and maintenance practices.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

282 HP Fire Pump Engine
Addendum A: Source Applicable Requirements

Describe and cite all applicable requirements pertaining to this source.
Note: A Method of Compliance Worksheet (Addendum 1) must be completed for each requirement listed.

Citation Number	Citation Limitation	Limitation Used
40 CFR §60.4205(c)	*Comply with emissions standards listed in Table 4 of 40 CFR Part 60, Subpart IIII.*	*See Citation Limitation*
40 CFR §60.4206	*Meet emissions standards for the entire life of the engine.*	*See Citation Limitation*
40 CFR §60.4207	*Fire diesel fuel in the engine that meets the requirements of 40 CFR §80.510(b).*	*See Citation Limitation*
40 CFR §60.4209(a)	*Install and operate a non-resettable hour meter.*	*See Citation Limitation*
40 CFR §60.4211(a)	*Operate the CI internal combustion engine according to the manufacturer's emission-related instructions and change only those emission-related settings that are permitted by the manufacturer.*	*See Citation Limitation*
40 CFR §60.4211(f)	*Limit operation of the stationary ICE for maintenance checks and readiness tests to less than 100 hours/year, and limit non-emergency operation to 50 hours/year of the 100 hours/year.*	*See Citation Limitation*
40 CFR §60.4214(b)	*Keep records of the operation of the engine in emergency and non-emergency service that is recorded through the non-resettable hour meter.*	*See Citation Limitation*
40 CFR §63.6590(c)(1)	*Comply with 40 CFR Part 60, Subpart IIII Requirements.*	*See Citation Limitation*
25 Pa. Code §123.13(c)(1)(i)	*0.04 gr/dscf PM*	*See Citation Limitation*
25 Pa. Code §123.21	*500 ppmvd SO_2*	*See Citation Limitation*
25 Pa. Code §§123.41 and 123.42	*Limit visible emissions to 20% for a period or periods aggregating more than three minutes in any one hour, and 60% at any time.*	*See Citation Limitation*
25 Pa. Code §127.12(a)(5)	*BAT – good operating practices*	*See Citation Limitation*
25 Pa. Code §127.12(a)(10)	*Good operating practices*	*See Citation Limitation*

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Addendum 1
Method Of Compliance Worksheet

SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id:	*23-2116774*	**Firm Name:**	*B. Braun Medical, Inc.*
Plant Code:	*1*	**Plant Name:**	*B. Braun Medical, Inc. – Allentown*

Applicable Requirement for: (please check only one box below)

☐ **The entire site**

☐ **A group of sources, Group ID:**

☒ **A single source, Unit ID:** *TBD – 282 HP Fire Pump*

☐ **Alternative Scenario, Scenario Name:**

Citation #: *40 CFR Part 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☒ **Monitoring** ☐ **Testing** ☐ **Reporting**

☒ **Record Keeping** ☒ **Work Practice Standard**

Section 2: Monitoring

1. **Monitoring device type (stack test, CEM, etc.):** *Non-resettable hour meter*
2. **Monitoring device location:** *On fire pump*

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Continuously monitor hours of operation

3. **How will data be reported:** *As applicable*

Section 3: Testing – N/A

1. Reference Test Method Description: _____

2. Reference Test Method Citation: _____

Section 4: Record Keeping

Describe what parameters will be recorded and the frequency of recording:

Records must be kept of any notifications submitted to comply with 40 CFR Part 60, Subpart IIII and all documentation supporting any notification, all maintenance performed on the engine, and documentation from the manufacturer that the engine is certified to meet the emissions standards.

Record the hours of operation of the engine that is recorded through the non-resettable hour meter. Document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency.

Section 5: Reporting – N/A

Describe what is to be reported and the frequency of reporting:

_____

_____

_____

1. Reporting start date: _____

Section 6: Work Practice Standard

Describe any work practice standards:

1. Comply with emissions standards listed in Table 4 of 40 CFR Part 60, Subpart IIII.
2. Meet emissions standards for the entire life of the engine.
3. Operate the compression ignition (CI) internal combustion engine (ICE) according to the manufacturer's emission-related instructions.
4. Limit operation of the stationary ICE for maintenance checks and readiness tests to less than 100 hours/year, and limit non-emergency operation to 50 hours/year of the 100 hours/year.
5. Fire diesel fuel in the engine that meets the requirements of 40 CFR §80.510(b).

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BUREAU OF AIR QUALITY

Addendum 1
Method Of Compliance Worksheet

SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id:	*23-2116774*	**Firm Name:**	*B. Braun Medical, Inc.*
Plant Code:	*1*	**Plant Name:**	*B. Braun Medical, Inc. – Allentown*

Applicable Requirement for: (please check only one box below)

☐ **The entire site**

☐ **A group of sources, Group ID:**

☒ **A single source, Unit ID:** *TBD – 282 HP Fire Pump*

☐ **Alternative Scenario, Scenario Name:**

Citation #: *40 CFR Part 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☐ **Monitoring** ☐ **Testing** ☐ **Reporting**

☐ **Record Keeping** ☒ **Work Practice Standard**

Section 2: Monitoring – N/A

4. Monitoring device type (stack test, CEM, etc.):

5. Monitoring device location:

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

6. How will data be

reported:

Section 3: Testing – N/A

3. Reference Test Method Description:

4. Reference Test Method Citation:

Section 4: Record Keeping – N/A

Describe what parameters will be recorded and the frequency of recording:

Section 5: Reporting – N/A

Describe what is to be reported and the frequency of reporting:

2. Reporting start date:

Section 6: Work Practice Standard

Describe any work practice standards:

Comply with 40 CFR Part 60, Subpart IIII requirements.

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BUREAU OF AIR QUALITY

Addendum 1
Method Of Compliance Worksheet

SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id:	*23-2116774*	**Firm Name:**	*B. Braun Medical, Inc.*
Plant Code:	*1*	**Plant Name:**	*B. Braun Medical, Inc. – Allentown*

Applicable Requirement for: (please check only one box below)

☐ **The entire site**

☐ **A group of sources, Group ID:**

☒ **A single source, Unit ID:** *TBD – 282 HP Fire Pump*

☐ **Alternative Scenario, Scenario Name:**

Citation #: *25 Pa. Code Chapter 123 – Standards for Contaminants (PM, SO_2, Visible Emissions)*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☒ **Monitoring** ☐ **Testing** ☐ **Reporting**

☐ **Record Keeping** ☒ **Work Practice Standard**

Section 2: Monitoring

7. Monitoring device type (stack test, CEM, etc.): *N/A*

8. Monitoring device location: *N/A*

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Visual determination of fugitive emissions via U.S. EPA Reference Method 22

9. How will data be reported: *N/A*

Section 3: Testing – N/A

5. Reference Test Method Description:

6. Reference Test Method Citation:

Section 4: Record Keeping – N/A

Describe what parameters will be recorded and the frequency of recording:

Section 5: Reporting – N/A

Describe what is to be reported and the frequency of reporting:

3. Reporting start date:

Section 6: Work Practice Standard

Describe any work practice standards:

Compliance with the visible emissions and particulate matter standards will be ensured based on good operating and maintenance practices.
Compliance with the sulfur standard will be ensured with the use of ultra-low sulfur diesel.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Addendum 1
Method Of Compliance Worksheet

SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id:	*23-2116774*	**Firm Name:**	*B. Braun Medical, Inc.*
Plant Code:	*1*	**Plant Name:**	*B. Braun Medical, Inc. – Allentown*

Applicable Requirement for: (please check only one box below)

☐ **The entire site**

☐ **A group of sources, Group ID:**

☒ **A single source, Unit ID:** *TBD – 282 HP Fire Pump*

☐ **Alternative Scenario, Scenario Name:**

Citation #: *25 Pa. Code Chapter 127*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☐ **Monitoring** ☐ **Testing** ☐ **Reporting**

☐ **Record Keeping** ☒ **Work Practice Standard**

Section 2: Monitoring

10. Monitoring device type (stack test, CEM, etc.):

11. Monitoring device location:

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

12. How will data be reported:

Section 3: Testing – N/A

7. Reference Test Method Description: _____

8. Reference Test Method Citation: _____

Section 4: Record Keeping – N/A

Describe what parameters will be recorded and the frequency of recording:

Section 5: Reporting – N/A

Describe what is to be reported and the frequency of reporting:

4. Reporting start date: _____

Section 6: Work Practice Standard

Describe any work practice standards:

Good operating practices in accordance with manufacturer specifications.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

750 kW Emergency Generator
Addendum A: Source Applicable Requirements

Describe and cite all applicable requirements pertaining to this source.
Note: A Method of Compliance Worksheet (Addendum 1) must be completed for each requirement listed.

Citation Number	Citation Limitation	Limitation Used
40 CFR §60.4233(e)	*Comply with emissions standards listed in Table 1 of 40 CFR Part 60, Subpart JJJJ.*	*See Citation Limitation*
40 CFR §60.4234	*Meet emissions standards for the entire life of the engine.*	*See Citation Limitation*
40 CFR §60.4237	*Install and operate a non-resettable hour meter.*	*See Citation Limitation*
40 CFR §60.4243(b)(1)	*Operate the SI ICE according to the manufacturer's emission-related instructions, and keep records of conducted maintenance.*	*See Citation Limitation*
40 CFR §60.4243(d)	*Limit operation of the stationary ICE for maintenance checks and readiness tests to less than 100 hours/year, and limit non-emergency operation to 50 hours/year of the 100 hours/year.*	*See Citation Limitation*
40 CFR §60.4245(a)	*Keep records of all notifications submitted to comply with 40 CFR Part 60, Subpart JJJJ, documentation supporting any notification, maintenance conducted on the engine, and documentation from the manufacturer that the engine is certified to meet the applicable emissions standards.*	*See Citation Limitation*
40 CFR §60.4245(b)	*Record the hours of operation of the engine that is recorded through the non-resettable hour meter.*	*See Citation Limitation*
40 CFR §63.6590(c)(1)	*Comply with 40 CFR Part 60, Subpart JJJJ Requirements.*	*See Citation Limitation*
25 Pa. Code §123.13(c)(1)(i)	*0.04 gr/dscf PM*	*See Citation Limitation*
25 Pa. Code §123.21	*500 ppmvd SO_2*	*See Citation Limitation*
25 Pa. Code §§123.41 and 123.42	*Limit visible emissions to 20% for a period or periods aggregating more than three minutes in any one hour, and 60% at any time.*	*See Citation Limitation*
25 Pa. Code §127.12(a)(5)	*BAT – good operating practices*	*See Citation Limitation*
25 Pa. Code §127.12(a)(10)	*Good operating practices*	*See Citation Limitation*

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Addendum 1
Method Of Compliance Worksheet

SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id:	*23-2116774*	**Firm Name:**	*B. Braun Medical, Inc.*
Plant Code:	*1*	**Plant Name:**	*B. Braun Medical, Inc. – Allentown*

Applicable Requirement for: (please check only one box below)

☐ **The entire site**

☐ **A group of sources, Group ID:**

☒ **A single source, Unit ID:** *TBD – 750 kW Emergency Generator*

☐ **Alternative Scenario, Scenario Name:**

Citation #: *40 CFR Part 60, Subpart JJJJ – Standard of Performance for Stationary Spark Ignition Internal Combustion Engines*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☒ **Monitoring** ☐ **Testing** ☐ **Reporting**

☒ **Record Keeping** ☒ **Work Practice Standard**

Section 2: Monitoring

1. **Monitoring device type (stack test, CEM, etc.):** *Non-resettable hour meter*
2. **Monitoring device location:** *On engine/generator set*

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Continuously monitor hours of operation

3. **How will data be reported:** *As applicable*

Section 3: Testing – N/A

1. Reference Test Method Description: _____

2. Reference Test Method Citation: _____

Section 4: Record Keeping

Describe what parameters will be recorded and the frequency of recording:

Records must be kept of any occurrence and the duration of each malfunction of operation, all required maintenance performed on the air pollution control device or monitoring equipment, any actions taken during periods of malfunction to minimize emissions including corrective actions, any maintenance conducted on the reciprocating internal combustion engine (RICE) to demonstrate that the engine was operated and maintained according to the maintenance plan. Records must be maintained for the previous five years.

Record the hours of operation of the engine that is recorded through the non-resettable hour meter. Document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency.

Keep records of all notifications submitted to comply with 40 CFR Part 60, Subpart JJJJ, documentation supporting any notification, and documentation from the manufacturer that the engine is certified to meet the applicable emissions standards.

Section 5: Reporting – N/A

Describe what is to be reported and the frequency of reporting:

_____

_____

_____

1. Reporting start date: _____

Section 6: Work Practice Standard

Describe any work practice standards:

1. Comply with emissions standards listed in Table 1 of 40 CFR Part 60, Subpart JJJJ.
2. Meet emissions standards for the entire life of the engine.
3. Operate the spark ignition (SI) ICE according to the manufacturer's emission-related instructions.
4. Limit operation of the stationary ICE for maintenance checks and readiness tests to less than 100 hours/year, and limit non-emergency operation to 50 hours/year of the 100 hours/year.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Addendum 1
Method Of Compliance Worksheet

SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id:	*23-2116774*	**Firm Name:**	*B. Braun Medical, Inc.*
Plant Code:	*1*	**Plant Name:**	*B. Braun Medical, Inc. – Allentown*

Applicable Requirement for: (please check only one box below)

☐ **The entire site**

☐ **A group of sources, Group ID:**

☒ **A single source, Unit ID:** *TBD – 750 kW Emergency Generator*

☐ **Alternative Scenario, Scenario Name:**

Citation #: *40 CFR Part 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☐ **Monitoring** ☐ **Testing** ☐ **Reporting**

☐ **Record Keeping** ☒ **Work Practice Standard**

Section 2: Monitoring – N/A

1. **Monitoring device type (stack test, CEM, etc.):**
2. **Monitoring device location:**

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

3. **How will data be reported:**

Section 3: Testing – N/A

1. Reference Test Method Description:

2. Reference Test Method Citation:

Section 4: Record Keeping – N/A

Describe what parameters will be recorded and the frequency of recording:

Section 5: Reporting – N/A

Describe what is to be reported and the frequency of reporting:

1. Reporting start date:

Section 6: Work Practice Standard

Describe any work practice standards:

Comply with 40 CFR Part 60, Subpart JJJJ requirements.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Addendum 1
Method Of Compliance Worksheet

SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id:	*23-2116774*	**Firm Name:**	*B. Braun Medical, Inc.*
Plant Code:	*1*	**Plant Name:**	*B. Braun Medical, Inc. – Allentown*

Applicable Requirement for: (please check only one box below)

☐ **The entire site**

☐ **A group of sources, Group ID:**

☒ **A single source, Unit ID:** *TBD – 750 kW Emergency Generator*

☐ **Alternative Scenario, Scenario Name:**

Citation #: *25 Pa. Code Chapter 123 – Standards for Contaminants (PM, SO_2, Visible Emissions)*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☒ **Monitoring** ☐ **Testing** ☐ **Reporting**

☐ **Record Keeping** ☒ **Work Practice Standard**

Section 2: Monitoring

1. **Monitoring device type (stack test, CEM, etc.):** *N/A*
2. **Monitoring device location:** *N/A*

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

Visual determination of fugitive emissions via U.S. EPA Reference Method 22

3. **How will data be reported:** *N/A*

Section 3: Testing – N/A

1. Reference Test Method Description:

2. Reference Test Method Citation:

Section 4: Record Keeping – N/A

Describe what parameters will be recorded and the frequency of recording:

Section 5: Reporting – N/A

Describe what is to be reported and the frequency of reporting:

1. Reporting start date:

Section 6: Work Practice Standard

Describe any work practice standards:

Compliance with the visible emissions and particulate matter standards will be ensured based on good operating and maintenance practices.
Compliance with the sulfur standard will be ensured with the use of natural gas which contains only negligible amounts of sulfur.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Addendum 1
Method Of Compliance Worksheet

SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id:	*23-2116774*	**Firm Name:**	*B. Braun Medical, Inc.*
Plant Code:	*1*	**Plant Name:**	*B. Braun Medical, Inc. – Allentown*

Applicable Requirement for: (please check only one box below)

☐ **The entire site**

☐ **A group of sources, Group ID:**

☒ **A single source, Unit ID:** *TBD – 750 kW Emergency Generator*

☐ **Alternative Scenario, Scenario Name:**

Citation #: *25 Pa. Code Chapter 127*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☐ **Monitoring** ☐ **Testing** ☐ **Reporting**

☐ **Record Keeping** ☒ **Work Practice Standard**

Section 2: Monitoring

1. **Monitoring device type (stack test, CEM, etc.):**
2. **Monitoring device location:**

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

3. **How will data be reported:**

Section 3: Testing – N/A

1. Reference Test Method Description: _____

2. Reference Test Method Citation: _____

Section 4: Record Keeping – N/A

Describe what parameters will be recorded and the frequency of recording:

Section 5: Reporting – N/A

Describe what is to be reported and the frequency of reporting:

1. Reporting start date: _____

Section 6: Work Practice Standard

Describe any work practice standards:

Good operating practices in accordance with manufacturer specifications.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Three Cooling Towers
Addendum A: Source Applicable Requirements

Describe and cite all applicable requirements pertaining to this source.
Note: A Method of Compliance Worksheet (Addendum 1) must be completed for each requirement listed.

Citation Number	Citation Limitation	Limitation Used
25 Pa. Code §123.13(c)(1)(i)	***0.04 gr/dscf PM***	***See Citation Limitation***
25 Pa. Code §127.12(a)(5)	***BAT – good operating practices***	***See Citation Limitation***
25 Pa. Code §127.12(a)(10)	***Good operating practices***	***See Citation Limitation***

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Addendum 1
Method Of Compliance Worksheet

SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id:	*23-2116774*	**Firm Name:**	*B. Braun Medical, Inc.*
Plant Code:	*1*	**Plant Name:**	*B. Braun Medical, Inc. – Allentown*

Applicable Requirement for: (please check only one box below)

☐ **The entire site**

☐ **A group of sources, Group ID:**

☒ **A single source, Unit ID:** *TBD – 3 Cooling Towers*

☐ **Alternative Scenario, Scenario Name:**

Citation #: *25 Pa. Code Chapter 123 – Standards for Contaminants (PM, SO_2, Visible Emissions)*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☐ **Monitoring** ☐ **Testing** ☐ **Reporting**

☐ **Record Keeping** ☒ **Work Practice Standard**

Section 2: Monitoring – N/A

1. **Monitoring device type (stack test, CEM, etc.):**
2. **Monitoring device location:**

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

3. **How will data be reported:**

Section 3: Testing – N/A

1. **Reference Test Method Description:** _____

2. **Reference Test Method Citation:** _____

Section 4: Record Keeping – N/A

Describe what parameters will be recorded and the frequency of recording:

Section 5: Reporting – N/A

Describe what is to be reported and the frequency of reporting:

_____

_____

_____

1. **Reporting start date:** _____

Section 6: Work Practice Standard

Describe any work practice standards:

Compliance with the particulate matter standards will be ensured based on good operating and maintenance practices.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

Addendum 1
Method Of Compliance Worksheet

SECTION 1. APPLICABLE REQUIREMENT

Federal Tax Id:	*23-2116774*	**Firm Name:**	*B. Braun Medical, Inc.*
Plant Code:	*1*	**Plant Name:**	*B. Braun Medical, Inc. – Allentown*

Applicable Requirement for: (please check only one box below)

☐ **The entire site**

☐ **A group of sources, Group ID:**

☒ **A single source, Unit ID:** *TBD – 3 Cooling Towers*

☐ **Alternative Scenario, Scenario Name:**

Citation #: *25 Pa. Code §127.12(a)(5) and §127.12(a)(10)*

Compliance Method based upon: ☒ **Applicable Requirement** ☐ **Gap Filling Requirement**

Method of Compliance Type: (Check all that applies and complete all appropriate sections below)

☐ **Monitoring** ☐ **Testing** ☐ **Reporting**

☐ **Record Keeping** ☒ **Work Practice Standard**

Section 2: Monitoring – N/A

4. **Monitoring device type (stack test, CEM, etc.):**

5. **Monitoring device location:**

Describe all parameters being monitored along with the frequency and duration of monitoring each parameter:

6. **How will data be reported:**

Section 3: Testing – N/A

3. Reference Test Method Description:

4. Reference Test Method Citation:

Section 4: Record Keeping – N/A

Describe what parameters will be recorded and the frequency of recording:

Section 5: Reporting – N/A

Describe what is to be reported and the frequency of reporting:

2. Reporting start date: ***N/A***

Section 6: Work Practice Standard

Describe any work practice standards:

Compliance with good operating and maintenance practices.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY

AIR POLLUTION CONTROL ACT COMPLIANCE REVIEW FORM

Fully and accurately provide the following information, as specified. Attach additional sheets as necessary.

Type of Compliance Review Form Submittal (check all that apply)

☐ Original Filing
☒ Amended Filing

Date of Last Compliance Review Form Filing:
07/09/2014

Type of Submittal

☒ New Plan Approval ☐ New Operating Permit ☐ Renewal of Operating Permit
☐ Extension of Plan Approval ☐ Change of Ownership ☐ Periodic Submission (@ 6 mos)
☐ Other: _____

SECTION A. GENERAL APPLICATION INFORMATION

Name of Applicant/Permittee/("applicant")
(non-corporations-attach documentation of legal name)
B. Braun Medical, Inc.

Address ***901 Marcon Blvd.***
Allentown, PA 18109

Telephone ***(610) 596-2584*** **Taxpayer ID#** ***23-211-6774***

Permit, Plan Approval or Application ID# ***Title V Operating Permit No. 39-00055***

Identify the form of management under which the applicant conducts its business (check appropriate box)

☐ Individual ☐ Syndicate ☐ Government Agency
☐ Municipality ☐ Municipal Authority ☐ Joint Venture
☐ Proprietorship ☐ Fictitious Name ☐ Association
☐ Public Corporation ☐ Partnership ☐ Other Type of Business, specify below:
☒ Private Corporation ☐ Limited Partnership

Describe below the type(s) of business activities performed.

B. Braun Medical, Inc. operates a surgical and medical instrument apparatus manufacturing facility.

SECTION B. GENERAL INFORMATION REGARDING "APPLICANT"

If applicant is a corporation or a division or other unit of a corporation, provide the names, principal places of business, state of incorporation, and taxpayer ID numbers of all domestic and foreign parent corporations (including the ultimate parent corporation), and all domestic and foreign subsidiary corporations of the ultimate parent corporation with operations in Pennsylvania. Please include all corporate divisions or units, (whether incorporated or unincorporated) and privately held corporations. (A diagram of corporate relationships may be provided to illustrate corporate relationships.) Attach additional sheets as necessary.

Unit Name	Principal Places of Business	State of Incorporation	Taxpayer ID	Relationship to Applicant
B. Braun Medical, Inc.	*824 12th Ave. Bethlehem, PA 18018 (Corporate Offices)*	*PA*	*23-211-6774*	*100% Owner of B. Braun Medical, Inc.*

SECTION C. SPECIFIC INFORMATION REGARDING APPLICANT AND ITS "RELATED PARTIES"

Pennsylvania Facilities. List the name and location (mailing address, municipality, county), telephone number, and relationship to applicant (parent, subsidiary or general partner) of applicant and all Related Parties' places of business, and facilities in Pennsylvania. Attach additional sheets as necessary.

Unit Name	Street Address	County and Municipality	Telephone No.	Relationship to Applicant
B. Braun Medical, Inc.	*824 12th Ave. Bethlehem, PA 18018 (Corporate Offices)*	*Lehigh and Hanover*	*(610) 691-5400*	*100% Owner of B. Braun Medical, Inc.*
B. Braun Medical, Inc.	*901 Marcon Blvd. Allentown, PA 18109 (Manufacturing Division)*	*Lehigh and Hanover*	*(610) 596-2584*	*Applicant*
B. Braun Medical, Inc.	*939 Marcon Blvd. Allentown, PA 18109*	*Lehigh and Hanover*	*(610) 266-0500*	*Sister Facility*
B. Braun Medical, Inc.	*200 Boulder Drive Breinigsville, PA 18031*	*Lehigh and Upper Macungie*	*(610) 336-9595*	*Sister Facility*
B. Braun Medical, Inc.	*944 Marcon Blvd. Allentown, PA 18109*	*Lehigh and Hanover*	*(610) 596-2584*	*Sister Facility*
B. Braun Medical, Inc.	*861 Marcon Blvd. Allentown, PA 18109*	*Lehigh and Hanover*	*(484) 241-6767*	*Sister Facility*
B. Braun Medical, Inc.	*871 Marcon Blvd. Allentown, PA 18109*	*Lehigh and Hanover*	*(484) 241-6767*	*Sister Facility*

Provide the names and business addresses of all general partners of the applicant and parent and subsidiary corporations, if any.

Name	Business Address
None	

List the names and business address of persons with overall management responsibility for the process being permitted (i.e. plant manager).

Name	Business Address
Rex Boland (VP/GM of Allentown Operations)	*901 Marcon Blvd. Allentown, PA 18109*

Plan Approvals or Operating Permits. List all plan approvals or operating permits issued by the Department or an approved local air pollution control agency under the APCA to the applicant or related parties that are currently in effect or have been in effect at any time 5 years prior to the date on which this form is notarized. This list shall include the plan approval and operating permit numbers, locations, issuance and expiration dates. Attach additional sheets as necessary.

Air Contamination Source	Plan Approval/ Operating Permit#	Location	Issuance Date	Expiration Date
Facility	***39-00055***	***901 Marcon Blvd. Allentown, PA 18109***	***08/31/2016***	***08/31/2021***

Compliance Background. (Note: Copies of specific documents, if applicable, must be made available to the Department upon its request.) List all documented conduct of violations or enforcement actions identified by the Department pursuant to the APCA, regulations, terms and conditions of an operating permit or plan approval or order by applicant or any related party, using the following format grouped by source and location in reverse chronological order. Attach additional sheets as necessary. See the definition of "documented conduct" for further clarification. Unless specifically directed by the Department, deviations which have been previously reported to the Department in writing, relating to monitoring and reporting, need not be reported.

Date	Location	Plan Approval/ Operating Permit#	Nature of Documented Conduct	Type of Department Action	Status: Litigation Existing/Continuing or Corrected/Date	Dollar Amount Penalty
None						$
						$
						$
						$
						$
						$
						$
						$
						$
						$

List all incidents of deviations of the APCA, regulations, terms and conditions of an operating permit or plan approval or order by applicant or any related party, using the following format grouped by source and location in reverse chronological order. This list must include items both currently known and unknown to the Department. Attach additional sheets as necessary. See the definition of "deviations" for further clarification.

Date	Location	Plan Approval/ Operating Permit#	Nature of Deviation	Incident Status: Litigation Existing/Continuing Or Corrected/Date
None				

<u>CONTINUING OBLIGATION</u>. Applicant is under a continuing obligation to update this form using the Compliance Review Supplemental Form if any additional deviations occur between the date of submission and Department action on the application.

VERIFICATION STATEMENT
Subject to the penalties of Title 18 Pa.C.S. Section 4904 and 35 P.S. Section 4009(b)(2), I verify under penalty of law that I am authorized to make this verification on behalf of the Applicant/Permittee. I further verify that the information contained in this Compliance Review Form is true and complete to the best of my belief formed after reasonable inquiry. I further verify that reasonable procedures are in place to ensure that "documented conduct" and "deviations" as defined in 25 Pa Code Section 121.1 are identified and included in the information set forth in this Compliance Review Form.
Rex L. Boland — Signature; 7-26-18 — Date
Rex Boland — Name (Print or Type)
VP/GM of Allentown Operations — Title

APPENDIX B – EMISSIONS INVENTORY

Table B-1

Injection Molding Process Potential to Emit [a]

B. Braun Medical, Inc. - Allentown Facility Expansion Project

Material Name	VOC Content[d] (weight %)	Maximum Estimated Number of Purges[e] (purges/day)	Worst-Case Purge Amount[e] (lb/purge)	VOC Emissions[f] (tpy)
Material 4[b]	0.25	6	10	0.03
Material 5[c]	0.026			2.85E-03
			Total Potential Emissions	***0.03***

[a] Emissions of Volatile Organic Compound (VOC) to the atmosphere from the Injection Molding process occur only during purging events (i.e., cleaning events).

[b] Material 4 is the material that will be utilized within the Injection Molding process with the highest VOC content. Emissions have been calculated to conservatively assume all material purged and vented to atmosphere from the Injection Molding process will be Material 4. The name of the material is not included within the table for purposes of confidentiality.

[c] Material 5 is utilized within the Injection Molding process to clean the injection molding machine of any remaining material prior to starting a new mold or using a new material. The name of the material is not included within the table for purposes of confidentiality.

[d] VOC content as provided by the manufacturer.

[e] B. Braun has assumed the worst case number of purges per day (i.e., 6 purges per day) and amount (i.e., 10 lbs of resin and cleaner per purge) vented to atmosphere.

[f] Annual emissions assume that 100% of the VOC contained in the material and cleaning product utilized during the purge event are vented to atmosphere (i.e., emissions assume no VOC is retained in the final product).

Calculations assume the following:

Annual Operation:	365	days/year
Pound to Ton Conversion:	2,000	pounds/ton

Table B-2
282 HP Fire Pump Potential to Emit
B. Braun Medical, Inc. - Allentown Facility Expansion Project

Pollutant	Emissions Factor			Emissions[g] (tpy)
	Value	Unit	Source	
NO_X	6.13E-03	lb/hp-hr	(a)	0.43
CO	6.68E-03	lb/hp-hr	(b)	0.47
SO_2	2.05E-03	lb/hp-hr	(b)	0.14
VOC	4.88E-04	lb/hp-hr	(a)	0.03
PM	3.31E-04	lb/hp-hr	(a)(c)	0.02
$PM_{2.5}$	3.31E-04	lb/hp-hr	(a)(c)	0.02
PM_{10}	3.31E-04	lb/hp-hr	(a)(c)	0.02
Pb	-	-	-	-
CO_2	73.96	kg/MMBtu	(d)	80.47
N_2O	6.00E-04	kg/MMBtu	(d)	6.53E-04
CH_4	3.00E-03	kg/MMBtu	(d)	3.26E-03
CO_2e	-		(e)	80.74
Single Highest HAP	1.18E-03	lb/MMBtu	(f)	5.82E-04
Total HAP	3.79E-03	lb/MMBtu	(f)	1.87E-03

[a] NO_X, VOC, and PM emissions factors are the applicable emissions standards for a 282 hp engine from Table 4 of 40 CFR Part 60, Subpart IIII. The NO_X and VOC emissions factors were calculated by applying the ratio of the AP-42 Chapter 3, Section 3, Table 3.3-1 NO_X/VOC factors to the NO_X + NMHC 40 CFR Part 60, Subpart IIII applicable emissions standard (i.e., 3 g/hp-hr).

[b] Diesel fuel-fired emissions factors obtained from U.S. EPA AP-42 Chapter 3, Section 3, Table 3.3-1.

[c] Assumes PM= PM_{10}= $PM_{2.5}$.

[d] Emissions factors obtained from 40 CFR Part 98, Subpart C, Table C-1 and Table C-2.

[e] CO_2e is carbon dioxide equivalent in metric tons/year, calculated according to 40 CFR 98 Equation A-1, where:

$$CO_2e = \sum_{i=1}^{n} GHG_i \times GWP_i$$

GHG_i = mass emissions of each greenhouse gas listed in Table A-1, metric tons/year.
GWP_i = global warming potential for each greenhouse gas from Table A-1.
n = number of greenhouse gases emitted.

Table A-1: Global Warming Potentials	
Pollutant	*GWP (100 year)*
CO_2	1
CH_4	25
N_2O	298

[f] Emissions factors obtained from U.S. EPA AP-42 Chapter 3, Section 3, Table 3.3-2.

[g] Assumes 500 hours per year operation.

Calculations assume the following:

Fire Pump Rating:	282	hp
Fire Pump Rating:	1.97	MMBtu/hr
Btu to hp-hr Conversion:	7,000	Btu/hp-hr
Pound to Kilogram Conversion:	2.20	lb/kg
Btu to MMBtu Conversion:	1,000,000	Btu/MMBtu
Annual Operation:	500	hr/yr
Pound to Ton Conversion:	2,000	lb/ton

Table B-3
750 kW Emergency Generator Potential to Emit
B. Braun Medical, Inc. - Allentown Facility Expansion Project

Pollutant	Emissions Factor			Emissions[(h)] (tpy)
	Value	Unit	Source	
NO_X	2.0	g/hp-hr	(a)	1.11
CO	4.0	g/hp-hr	(a)	2.22
SO_2	5.88E-04	lb/MMBtu	(b)(c)	1.03E-03
VOC	1.0	g/hp-hr	(a)	0.55
PM	0.04	lb/MMBtu	(b)(c)(d)	0.07
$PM_{2.5}$	0.05	lb/MMBtu	(b)(c)(d)	0.08
PM_{10}	0.05	lb/MMBtu	(b)(c)(d)	0.08
Pb	-	-	-	-
CO_2	53.06	kg/MMBtu	(e)	205.81
N_2O	1.00E-04	kg/MMBtu	(e)	3.88E-04
CH_4	1.00E-03	kg/MMBtu	(e)	3.88E-03
CO_2e	-		(f)	206.02
Single Highest HAP	0.06	lb/MMBtu	(g)	0.10
Total HAP	0.08	lb/MMBtu	(g)	0.14

[(a)] NO_X, CO, and VOC emissions factors are the applicable emissions standards for a 750 kW emergency engine from Table 1 of 40 CFR Part 60, Subpart JJJJ.
[(b)] Assumed an uncontrolled 2-stroke lean-burn engine.
[(c)] Natural gas-fired emissions factors obtained from U.S. EPA AP-42 Chapter 3, Section 2, Table 3.2-1.
[(d)] It was assumed that the PM emissions factor is only filterable particulate. $PM_{2.5}$ and PM_{10} emissions factors were assumed to be both filterable and condensable particulate.
[(e)] Emissions factors obtained from 40 CFR Part 98, Subpart C, Table C-1 and Table C-2.
[(f)] CO_2e is carbon dioxide equivalent in metric tons/year, calculated according to 40 CFR 98 Equation A-1, where:

$$CO_2e = \sum_{i=1}^{n} GHG_i \times GWP_i$$

GHG_i = mass emissions of each greenhouse gas listed in Table A-1, metric tons/year.
GWP_i = global warming potential for each greenhouse gas from Table A-1.
n = number of greenhouse gases emitted.

Table A-1: Global Warming Potentials	
Pollutant	*GWP (100 year)*
CO_2	1
CH_4	25
N_2O	298

[(g)] Emissions factors obtained from U.S. EPA AP-42 Chapter 3, Section 2, Table 3.2-1.
[(h)] Assumes 500 hours per year operation.

Calculations assume the following:

EGen Rating:	750	kW
EGen Rating:	1,005	hp
EGen Rating:	7	MMBtu/hr
kW to hp Conversion:	1.34	hp/kW
Btu to hp-hr Conversion:	7,000	Btu/hp-hr
Pound to Kilogram Conversion:	2.20	lb/kg
Gram to Pound Conversion:	453.59	g/lb
Btu to MMBtu Conversion:	1,000,000	Btu/MMBtu
Annual Operation:	500	hr/yr
Pound to Ton Conversion:	2,000	lb/ton

Table B-4

Boilers Potential to Emit[a]

B. Braun Medical, Inc. - Allentown Facility Expansion Project

Pollutant	Emissions Factor			Emissions[g] (tpy)
	Value	Unit	Source	
NO_X	50	lb/MMscf	(b)	9.02
CO	84	lb/MMscf	(b)	15.15
SO_2	0.6	lb/MMscf	(b)	0.11
VOC	5.5	lb/MMscf	(b)	0.99
PM	1.9	lb/MMscf	(b)(c)	0.34
$PM_{2.5}$	7.6	lb/MMscf	(b)(c)	1.37
PM_{10}	7.6	lb/MMscf	(b)(c)	1.37
Pb	5.00E-04	lb/MMscf	(b)	9.02E-05
CO_2	53.06	kg/MMBtu	(d)	21,519.11
N_2O	1.00E-04	kg/MMBtu	(d)	0.04
CH_4	1.00E-03	kg/MMBtu	(d)	0.41
CO_2e	-		(e)	21,541.34
Single Highest HAP	1.80	lb/MMscf	(f)	0.32
Total HAP	1.89	lb/MMscf	(f)	0.34

[a] B. Braun is proposing to install two 21 MMBtu/hr boilers.

[b] Emissions factors obtained from U.S. EPA AP-42 Chapter 1, Section 4, Table 1.4-1 and Table 1.4-2. The boilers will be installed with low NO_X burners.

[c] The PM emissions factor is only filterable particulate. $PM_{2.5}$ and PM_{10} emissions factors are for both filterable and condensable particulate.

[d] Emissions factors obtained from 40 CFR Part 98, Subpart C, Table C-1 and Table C-2.

[e] CO_2e is carbon dioxide equivalent in metric tons/year, calculated according to 40 CFR 98 Equation A-1, where:

$$CO_2e = \sum_{i=1}^{n} GHG_i \times GWP_i$$

GHG_i = mass emissions of each greenhouse gas listed in Table A-1, metric tons/year.

GWP_i = global warming potential for each greenhouse gas from Table A-1.

n = number of greenhouse gases emitted.

Table A-1: Global Warming Potentials	
Pollutant	*GWP (100 year)*
CO_2	1
CH_4	25
N_2O	298

[f] Emissions factors obtained from U.S. EPA AP-42 Chapter 1, Section 4, Table 1.4-3 and Table 1.4-4.

[g] Assumes total operating hours of 8,760 hours per year for each boiler.

Calculations assume the following:

Boiler Rating:	21	MMBtu/hr
Number of Boilers:	2	units
Btu to scf Conversion:	1,020	Btu/scf
Pound to Kilogram Conversion:	2.20	lb/kg
Annual Operation:	8,760	hr/yr
Pound to Ton Conversion:	2,000	lb/ton

Table B-5

Miscellaneous Combustion Equipment Potential to Emit[a]

B. Braun Medical, Inc. - Allentown Facility Expansion Project

Pollutant	Emissions Factor			Seventeen - 0.2 MMBtu/hr Air Handlers Emissions[g] (tpy)	Three - 0.6 MMBtu/hr Hot Water Heaters Emissions[g] (tpy)	One - 0.3 MMBtu/hr Hot Water Heater Emissions[g] (tpy)	Two - 0.83 MMBtu/hr Extrusion Dehumidifiers Emissions[g] (tpy)	Total Emissions[g] (tpy)
	Value	Unit	Source					
NO_X	100	lb/MMscf	(b)	1.46	0.77	0.13	0.71	3.07
CO	84	lb/MMscf	(b)	1.23	0.65	0.11	0.60	2.58
SO_2	0.6	lb/MMscf	(b)	0.01	4.64E-03	7.73E-04	4.26E-03	0.02
VOC	5.5	lb/MMscf	(b)	0.08	0.04	7.09E-03	0.04	0.17
PM	1.9	lb/MMscf	(b)(c)	0.03	0.01	2.45E-03	0.01	0.06
$PM_{2.5}$	7.6	lb/MMscf	(b)(c)	0.11	0.06	9.79E-03	0.05	0.23
PM_{10}	7.6	lb/MMscf	(b)(c)	0.11	0.06	9.79E-03	0.05	0.23
Pb	5.00E-04	lb/MMscf	(b)	7.30E-06	3.86E-06	6.44E-07	3.55E-06	1.54E-05
CO_2	53.06	kg/MMBtu	(d)	1,742	922.25	153.71	846.62	3,664.60
N_2O	1.00E-04	kg/MMBtu	(d)	3.28E-03	1.74E-03	2.90E-04	1.60E-03	6.91E-03
CH_4	1.00E-03	kg/MMBtu	(d)	0.03	0.02	2.90E-03	0.02	0.07
CO_2e	-		(e)	1,744	923.20	153.87	847.50	3,668.39
Single Highest HAP	1.80	lb/MMscf	(f)	0.03	1.39E-02	2.32E-03	1.28E-02	0.06
Total HAP	1.89	lb/MMscf	(f)	0.03	1.46E-02	2.43E-03	1.34E-02	0.06

[a] B. Braun is proposing to install seventeen 0.2 MMBtu/hr air handlers, three 0.6 MMBtu/hr hot water heaters, one 0.3 MMBtu/hr hot water heater, and two 0.83 MMBtu/hr dehumidifiers.

[b] Emissions factors obtained from U.S. EPA AP-42 Chapter 1, Section 4, Table 1.4-1 and Table 1.4-2.

[c] PM emissions factor is only filterable particulate. $PM_{2.5}$ and PM_{10} emissions factors are both filterable and condensable particulate.

[d] Emissions factors obtained from 40 CFR Part 98, Subpart C, Table C-1 and Table C-2.

[e] CO_2e is carbon dioxide equivalent in metric tons/year, calculated according to 40 CFR 98 Equation A-1, where:

$$CO_2e = \sum_{i=1}^{n} GHG_i \times GWP_i$$

GHG_i = mass emissions of each greenhouse gas listed in Table A-1, metric tons/year.

GWP_i = global warming potential for each greenhouse gas from Table A-1.

n = number of greenhouse gases emitted.

Table A-1: Global Warming Potentials	
Pollutant	*GWP (100 year)*
CO_2	1
CH_4	25
N_2O	298

[f] Emissions factors obtained from U.S. EPA AP-42 Chapter 1, Section 4, Table 1.4-3 and Table 1.4-4.

[g] Assumes total operating hours of 8,760 hours per year.

Note that the following was used in the development of this table:

Humidifier Air Handler Rating:	0.2	MMBtu/hr
Number of Air Handler Units:	17	units
Hot Water Heater Rating:	0.6	MMBtu/hr
Number of 0.6 MMBtu/hr Hot Water Heater Units:	3	units
Other Hot Water Heater:	0.3	MMBtu/hr
Extrusion Dehumidifier Rating:	0.83	MMBtu/hr
Number of Extrusion Dehumidifiers:	2	units
Btu to scf Conversion:	1,020	Btu/scf
Btu to MMBtu Conversion:	1,000,000	Btu/MMBtu
Pound to Kilogram Conversion:	2.20	lb/kg
Annual Operation:	8,760	hr/yr
Pound to Ton Conversion:	2,000	lb/ton
kW to hp Conversion:	0.7457	kW/hp

Table B-6

Cooling Towers Potential to Emit[a]

B. Braun Medical, Inc. - Allentown Facility Expansion Project

Pollutant	Emissions Rate[b][c]	
	lb/hr	tpy
PM	0.26	1.14
$PM_{2.5}$	0.26	1.14
PM_{10}	0.26	1.14

[a] B. Braun is proposing to install three 2,849 gallon per minute (gpm) cooling towers. A third cell will be installed for redundancy and will not be operational at the same time as the first and second cells. Therefore, potential emissions are based on operating two cells.

[b] Emissions factors obtained from U.S. EPA AP-42 Chapter 13, Section 4, Table 13.4-1 assuming $PM=PM_{2.5}=PM_{10}$.

[c] Note the following information was used to determine the potential emissions associated with the proposed cooling towers:

Parameter	Value	Units
Total circulating water (all units)	5,698	gpm
Drift loss [d]	0.005	%
Cycles of concentration	4	cycles
Total Dissolved Solids (TDS) [e]	380.5	mg/l
Margin	1.2	-
Hours in a year	8,760	hr/yr
Pound per ton	2,000	lb/ton
Density of water	8.34	lb/gal

[d] Manufacturer guaranteed drift loss.

[e] Per Lehigh County Authority Annual Water Quality Report 2017.

Table B-7
Total Project-Related Emissions
B. Braun Medical, Inc. - Allentown Facility Expansion Project

Pollutant	Proposed Expansion Project Emissions (tpy)
NO_X	13.63
CO	20.42
SO_2	0.27
VOC	1.78
PM	1.63
$PM_{2.5}$	2.85
PM_{10}	2.85
Pb	1.06E-04
CO_2	25,470
N_2O	0.05
CH_4	0.48
CO_2e	25,496
Single Highest HAP	0.34
Total HAP	0.54

APPENDIX C – MANUFACTURER SPECIFICATION SHEETS

Form No. 6310
(09/03)

Bryan "Flexible Water Tube"

RW Series
Steam & Water Boilers

8,500,000 to 21,000,000 BTUH
Forced draft gas, oil or dual fuel fired

Steam Boiler
RW1050-S150-FDG

Water Boiler
RW2100-W-FDGO

BRYAN BOILERS

Originators of the "Flexible Water Tube" design

A breakthrough in an industrial water tube boiler design.

- **True "flexible water tube" design guaranteed shock free**
- **High quality steam for heat or process**
- **Full five sq ft of heating surface per BHP[2]**

Quality construction features:

A. Water side or steam side interior accessible for cleanout and inspection, front and rear openings, upper and lower drums.

B. Large volume water leg downcomers promote rapid internal circulation, temperature equalization and efficient heat transfer.

C. Boiler tube and furnace area access panels: heavy gauge steel casing with 2" high-temperature ceramic fiber insulation, bolted and tightly sealed to boiler frame.

D. Flame observation port in access door at rear of boiler.

E. Dual side access; combustion chamber, tubes and burner head are completely accessible from either side simplifying maintenance and minimizing floor space.

F. Minimum sized flue vent.

G. Control panel: all controls installed with connections to terminal strip.

H. Forced draft, flame retention head type burner. Efficient combustion of oil or gas, plus quiet operation.

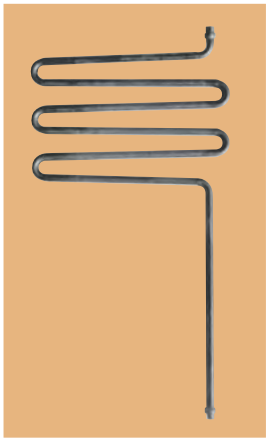
I. Heavy steel boiler frame, built and stamped in accordance with the appropriate ASME Boiler Code.

J. Heavy gauge steel boiler jacket with rust-resistant zinc coating and enamel finish, insulated with 1½" fiberglass to ensure exceptionally cool outer surface.

K. Bryan bent water tubes are flexible, individually replaceable without welding or rolling. Never more than two tube configurations.

L. Pressurized design firebox with internal water-cooled furnace with low heat release rate.

M. Steam boilers with extra large drum with high steam release area ensure stable water level and dry steam.



Bryan RW Series Boiler Specifications

BOILER MODEL [1]	INPUT MBH (KW)	OUTPUT @ 80% EFFICIENCY [2]		OUTPUT @ 84% EFFICIENCY [3]		STEAM OUTPUT [4] LBS/HR (KG/HR)	HTG. SURFACE SQ. FT. (M^2)	APPROX. SHIP LBS. (KG)
		MBH (KW)	HP (KW)	MBH (KW)	HP (KW)			
RW850-W	8,500 (2,490)	6,800 (1,992)	200 (1,992)	7,140 (2,092)	213 (2,092)	—	1,136 (106)	16,700 (7,575)
RW850-S	8,500 (2,490)	6,800 (1,992)	200 (1,992)	—	—	7,009 (3,197)	1,136 (106)	21,200 (9,616)
RW1050-W	10,500 (3,076)	8,400 (2,461)	250 (2,461)	8,820 (2,584)	263 (2,584)	—	1,288 (120)	18,540 (8,410)
RW1050-S	10,500 (3,076)	8,400 (2,461)	250 (2,461)	—	—	8,658 (3,927)	1,288 (120)	23,700 (10,750)
RW1260-W	12,600 (3,692)	10,080 (2,953)	300 (2,953)	10,584 (3,100)	316 (3,100)	—	1,552 (144)	20,770 (9,421)
RW1260-S	12,600 (3,692)	10,080 (2,953)	300 (2,953)	—	—	10,389 (4,712)	1,552 (144)	26,100 (11,838)
RW1500-W	15,000 (4,395)	12,000 (3,516)	350 (3,516)	12,600 (3,691)	376 (3,691)	—	1,818 (169)	23,070 (10,465)
RW1500-S	15,000 (4,395)	12,000 (3,516)	350 (3,516)	—	—	12,368 (5,610)	1,818 (169)	29,200 (13,245)
RW1700-W	17,000 (4,981)	13,600 (3,985)	400 (3,985)	14,280 (4,183)	427 (4,183)	—	2,087 (194)	24,910 (11,299)
RW1700-S	17,000 (4,981)	13,600 (3,985)	400 (3,985)	—	—	14,020 (6,360)	2,087 (194)	32,400 (14,697)
RW1900-W	19,000 (5,567)	15,200 (4,454)	450 (4,454)	15,960 (4,675)	477 (4,675)	—	2,347 (218)	26,950 (12,225)
RW1900-S	19,000 (5,567)	15,200 (4,454)	450 (4,454)	—	—	15,670 (7,108)	2,347 (218)	34,300 (15,559)
RW2100-W	21,000 (6,153)	16,800 (4,922)	500 (4,922)	17,640 (5,167)	527 (5,167)	—	2,612 (243)	26,800 (13,064)
RW2100-S	21,000 (6,153)	16,800 (4,922)	500 (4,922)	—	—	17,319 (7,856)	2,612 (243)	36,800 (16,693)

NOTES:
(1) W = Water / S = Steam
(2) Output and horsepower based on boiler industry standard of 80% of input.
(3) Output and horsepower based on an average natural gas combustion efficiency of 84% for hot water boiler. Actual combustion efficiencies for oil will be higher.
(4) Lbs. steam per hour from and at 212°F.

Guaranteed efficiency and easy maintenance assure low cost operation

BRYAN BOILERS
The only boilers with full non-prorated
25 Year Warranty
Protection Against Thermal Shock

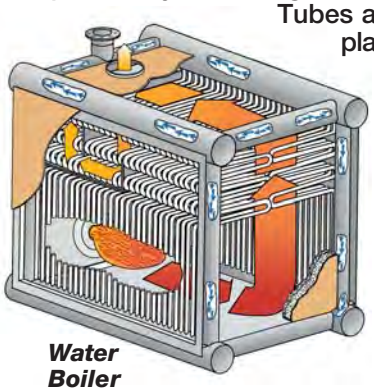
All Bryan RW Series boilers offer these operating and performance features

Guaranteed efficiency

The breakthrough in water tube boiler design that produced the RW Series provides operating efficiency so reliable, we guarantee it to be 84% for hot water boilers and 82% - 15 psi / 80% - 150 psi or better for steam boilers.

The Bryan Flexible Tube

Bryan's exclusive "Flexible Tube" design eliminates the possibility of damage from so-called "thermal shock." Tubes are easily removable and replaceable, without welding or rolling, eliminating long, expensive downtime should repairs ever be required.



Water Boiler

Water cooled furnace

The configuration of the water tubes provides a water cooled combustion chamber. A high percentage of the heating surface is exposed to direct radiant heat, increasing water velocities and heat transfer.

Large steam drum

The steam drum has generous water volume and steam release area. This design, along with effective drum internal functions, results in a stable water level and produces extremely dry steam at all load conditions.

Accessibility of furnace and tube area

Inner panel provides easy and complete access to boiler tube area. All panels are heavily insulated and sealed to boiler frame.

Compact design, minimum floor space

With our compact water tube design, the overall size of the unit is less than most other types of boilers, yet maintains a full five square feet of heating surface area per HP. Needing only 32" for tube removal, on each side of the boiler, the RW Series boiler occupies very little space in the boiler room. This can result in considerable savings in building costs. Pressurized firing permits minimum sized breaching and vent.

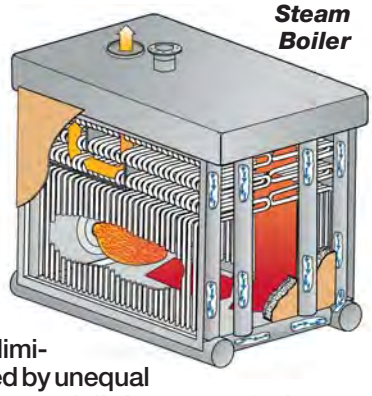
Multi-pass flue gas travel

High velocity five-pass flue gas travel is obtained by a unique baffling system. This contributes to maximum fire side heat transfer and overall high boiler efficiencies.

Thermal blend water return

Bryan's unique "thermal blend" return blends cold or cooler return water with warmer boiler water abridging it to design operating temperatures. The "mixed" water flow keeps the lower header and heating surfaces at a temperature above possible condensing conditions. This reduces the possibility of "cold spots" and damage from corrosive condensation.

Positive internal circulation



Steam Boiler

Each pass of the Bryan water tube slopes upward. This configuration, along with the large volume downcomer water legs, provides the extremely rapid natural thermal internal circulation, promoting both high efficiency of heat transfer and uniform temperature throughout the boiler. Eliminating stress damage caused by unequal temperature distribution is especially important for heating systems, particularly where intermittent or continuous low temperature water returns may be encountered.

Bryan RW Series Boilers Standard and Optional Equipment

STANDARD EQUIPMENT FURNISHED

Water Boiler

Combination thermometer and altitude gauge, ASME Code rated boiler relief valve, water temperature control (240°F max std.), high limit control, probe LWCO.

Steam Boiler

Steam pressure gauge, steam pressure control, combination low water cutoff and pump control, auxiliary low water cutoff, high limit pressure control, ASME-rated safety valve, water glass set.

Straight gas fired unit

Electronic combustion safety control, automatic operating gas valve, safety gas valve, pilot solenoid valve, pilot ignition assembly, main manual gas shut-off valve, pilot cock, pilot and main gas pressure regulators, air safety switch, control panel, all controls installed and wired. All units are standard with full modulation with proven low-fire start and characterized fuel metering.

Straight oil fired unit

Electronic combustion safety control, dual oil valves oil ignition transformer, two-stage fuel unit, gas pilot, oil nozzle assembly, control panel, all controls installed and wired. All units are standard with full modulation with proven low-fire start and characterized fuel metering.

Combination gas-oil unit

Electronic combustion safety control, automatic operating gas valve, safety gas valve, pilot solenoid valve, pilot ignition assembly, main manual gas shut-off valve, pilot cock, pilot and main gas pressure regulators, air safety switch, manual fuel selector switch, dual oil valves, oil ignition transformer, two-stage fuel unit, oil ignition and nozzle assembly, control panel, all controls installed and wired.

OPTIONAL EQUIPMENT, EXTRA COST

1. Manual reset high limit control
2. Manual reset low water cutoff
3. Auxiliary low water cutoff
4. Combination low water cutoff and feeder
5. Alarm bells or horns
6. UL, CUL, CSD-1, FM, IRI or other insurance approved control systems
7. Indicating lights, as desired
8. Lead-lag systems for two or more boilers with or without outdoor reset control
9. Draft control system
10. Low NOx package

OPTIONAL CONSTRUCTION:

Steam boiler

Optional construction to ASME Power Boiler Code requirements for pressure exceeding 150 psi to maximum of 300 psi design pressure.

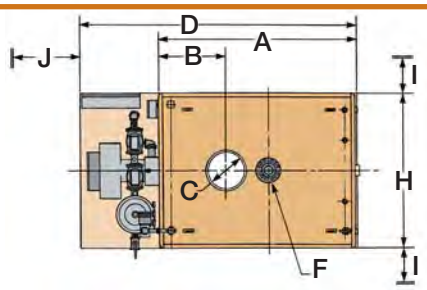
Hot water boiler

Optional construction to ASME Power Boiler Code requirements for temperatures exceeding 240° F and/or pressure exceeding 160 psi to maximum of 285° F operating and 300° F design temperature and 250 psi.

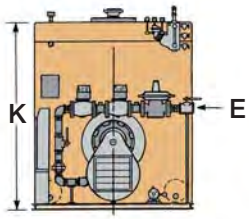
When ordering, please specify:

1. Boiler size
2. Supply and return temperatures required
3. Boiler relief valve setting
4. Type of fuel: natural, LP, or other gas and/or No. 2 oil
5. If gas, type, BTU content, specific gravity and pressure available
6. Electric power voltage, phase and frequency
7. Optional extra equipment or construction
8. Special approvals required (UL, CUL, CSD-1, FM, or IRI)
9. Altitude

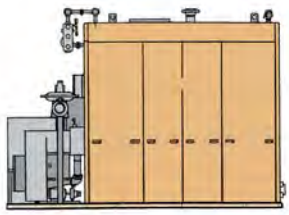
Bryan RW Series Steam & Hot Water Boilers

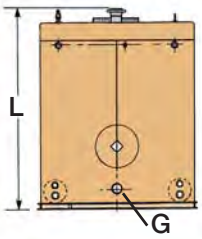


PLAN VIEW



FRONT VIEW

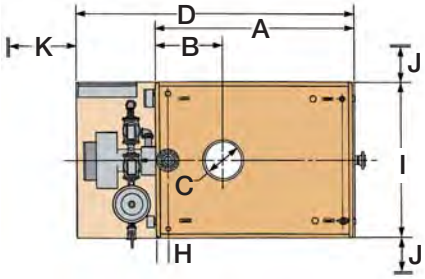

SIDE VIEW



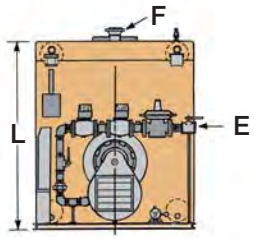
REAR VIEW

STEAM HEATING/PROCESSING BOILER DIMENSIONS in inches (cm)

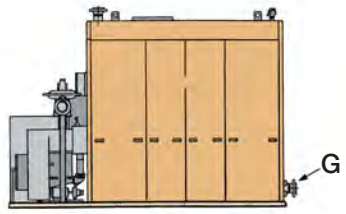
	A	B	C	D	E	F		G	H	I	J	K	L
Boiler Model Number	Length of Jacket	Flue Location	Flue Size	Overall Length	Gas Train Connection	Supply Nozzle 15 psi	Supply Nozzle 150 psi	Return Conn.	Width Outside Jacket	Min. Tube Removal Clearance	Clearance for Servicing Burner	Height Over Jacket	Floor to Flow Nozzle
RW850-S	124 (315.0)	36 (91.4)	20 (50.8)	163¾ (415.8)	2½ NPT (6.4)	10 (25.4)	6 (15.2)	2 (5.08)	89½ (227.3)	32 (81.3)	48 (121.9)	107½ (273.1)	113 (287)
RW1050-S	134 (340.4)	36 (91.4)	20 (50.8)	176⅝ (448.6)	3 NPT (7.6)	10 (25.4)	6 (15.2)	2 (5.08)	89½ (227.3)	32 (81.3)	48 (121.9)	107½ (273.1)	113 (287)
RW1260-S	156½ (397.5)	37 (94.0)	22 (55.9)	199¼ (506.1)	3 NPT (7.6)	12 (30.5)	6 (15.2)	2 (5.08)	89½ (227.3)	32 (81.3)	48 (121.9)	107½ (273.1)	113 (287)
RW1500-S	179 (454.7)	37 (94.0)	22 (55.9)	221¾ (563.2)	3 NPT (7.6)	12 (30.5)	8 (20.3)	2 (5.08)	89½ (227.3)	32 (81.3)	48 (121.9)	107½ (273.1)	113 (287)
RW1700-S	201½ (511.8)	38 (96.5)	24 (61.0)	224¼ (620.4)	3 NPT (7.6)	12 (30.5)	8 (20.3)	2 (5.08)	89½ (227.3)	32 (81.3)	48 (121.9)	107½ (273.1)	113 (287)
RW1900-S	224 (569.0)	39 (99.1)	26 (66.0)	266¾ (677.5)	4 NPT (10.2)	12 (30.5)	8 (20.3)	2 (5.08)	89½ (227.3)	32 (81.3)	48 (121.9)	107½ (273.1)	113 (287)
RW2100-S	246½ (626.1)	40 (101.6)	28 (71.1)	289½ (735.3)	4 NPT (10.2)	12 (30.5)	8 (20.3)	2 (5.08)	89½ (227.3)	32 (81.3)	48 (121.9)	107½ (273.1)	113 (287)



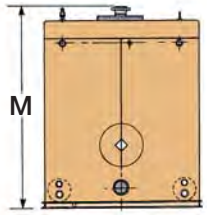
PLAN VIEW



FRONT VIEW



SIDE VIEW



REAR VIEW

HOT WATER HEATING BOILER DIMENSIONS in inches (cm)

	A	B	C	D	E	F & G	H	I	J	K	L	M
Boiler Model Number	Length of Jacket	Flue Location	Flue Size	Overall Length	Gas Train Connection	Supply & Return Nozzle	Supply Location	Width Outside Jacket	Min. Tube Removal Clearance	Clearance for Servicing Burner	Height Over Jacket	Floor to Flow Nozzle
RW850-W	124 (315.0)	36 (91.4)	20 (50.8)	163¾ (415.8)	2½ NPT (6.4)	8 (20.3)	9⅜ (23.8)	89½ (227.3)	32 (81.3)	48 (121.9)	104 (264.2)	110 (279.4)
RW1050-W	134 (340.4)	36 (91.4)	20 (50.8)	176⅝ (448.6)	3 NPT (7.6)	8 (20.3)	9⅜ (23.8)	89½ (227.3)	32 (81.3)	48 (121.9)	104 (264.2)	110 (279.4)
RW1260-W	156½ (397.5)	37 (94.0)	22 (55.9)	199¼ (506.1)	3 NPT (7.6)	8 (20.3)	9⅜ (23.8)	89½ (227.3)	32 (81.3)	48 (121.9)	104 (264.2)	110 (279.4)
RW1500-W	179 (454.7)	37 (94.0)	22 (55.9)	221¾ (563.2)	3 NPT (7.6)	8 (20.3)	9⅜ (23.8)	89½ (227.3)	32 (81.3)	48 (121.9)	104 (264.2)	110 (279.4)
RW1700-W	201½ (511.8)	38 (96.5)	24 (61.0)	244¼ (620.4)	3 NPT (7.6)	8 (20.3)	9⅜ (23.8)	89½ (227.3)	32 (81.3)	48 (121.9)	104 (264.2)	110 (279.4)
RW1900-W	224 (569.0)	39 (99.1)	26 (66.0)	266¾ (677.5)	4 NPT (10.2)	10 (25.4)	9⅜ (23.8)	89½ (227.3)	32 (81.3)	48 (121.9)	104 (264.2)	110 (279.4)
RW2100-W	246½ (626.1)	40 (101.6)	28 (71.1)	289½ (735.3)	4 NPT (10.2)	10 (25.4)	9⅜ (23.8)	89½ (227.3)	32 (81.3)	48 (121.9)	104 (264.2)	110 (279.4)

Specifications subject to change without notice. Contact factory to consult on other boiler options.

BRYAN BOILERS

Bryan Steam LLC — Since 1916

783 N. Chili Ave., Peru, Indiana 46970 U.S.A.

Phone: 765-473-6651 • Internet: www.bryanboilers.com

Fax: 765-473-3074 • E-mail: bryanboilers@iquest.net

Form No. 6310

Printed in USA

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CLARKE®

FIRE PUMP ENGINES

MODELS

JU6H-UFADMG	JU6H-UFADP0	JU6H-UFADR0	JU6H-UFADT0
JU6H-UFAD58	JU6H-UFADP8	JU6H-UFADR8	JU6H-UFADW8
JU6H-UFADNG	JU6H-UFADQ0	JU6H-UFADS8	JU6H-UFADX8
JU6H-UFADN0	JU6H-UFAD88	JU6H-UFADS0	JU6H-UFAD98

FM-UL-cUL APPROVED RATINGS BHP/*KW*

JU6H MODEL ♦	RATED SPEED 1760		2100		2350		2400		US-EPA (NSPS) Available Until ●
UFADMG			**175**	*131*	**175**	*131*			*No Expiration*
UFAD58	**183**	*137*							*No Expiration*
UFADNG	**190**	*142*	**181**	*135*	**183**	*137*	**183**	*137*	*No Expiration*
UFADN0	**197**	*147*	**197**	*147*	**200**	*149*	**200**	*149*	*No Expiration*
UFADP0			**209**	*156*	**211**	*157*	**211**	*157*	*No Expiration*
UFADP8	**220**	*164*							*No Expiration*
UFADQ0			**224**	*167*	**226**	*169*	**226**	*169*	*No Expiration*
UFAD88	**237**	*177*							*No Expiration*
UFADR0			**238**	*177.5*	**240**	*179*	**240**	*179*	*No Expiration*
UFADR8	**250**	*187*							*No Expiration*
UFADS8	**260**	*194*							*No Expiration*
UFADS0			**260**	*194*	**268**	*200*	**268**	*200*	*No Expiration*
UFADT0			**274**	*204*	**275**	*205*	**275**	*205*	*No Expiration*
UFADW8	**282**	*211*							*No Expiration*
UFADX8	**305**	*227.5*							*No Expiration*
UFAD98	**315**	*235*							*No Expiration*

Picture represents JU6H-TRWA Power Tech Plus Engine Series

● USA EPA (NSPS) Tier 3 Emissions Certified Off-Road (40 CFR Part 89) and NSPS Stationary (40 CFR Part 60 Sub Part IIII). Meet EU Stage IIIA emission levels.

♦ All Models available for Export

SPECIFICATIONS

ITEM	JU6H MODELS MG	58	NG	N0	P8	88	P0	Q0	R0	S0	T0	R8	S8	W8	X8	98
Number of Cylinders	6															
Aspiration	TRWA															
Rotation*	CW															
Overall Dimensions – in. (mm)	59.8 (1519) H x 56.7 (1414) L x 36.7 (933) W						60.9 (1547) H x 58.6 (1488) L x 40.0 (1015) W									
Crankshaft Centerline Height – in. (mm)	14 (356)															
Weight – lb (kg)	1747 (791)															
Compression Ratio	19.0:1						17.0:1									
Displacement – cu. in. (L)	415 (6.8)															
Engine Type	4 Stroke Cycle – Inline Construction															
Bore & Stroke – in. (mm)	4.19 x 5.00 (106 x 127)															
Installation Drawing	D628															
Wiring Diagram AC	C07651															
Wiring Diagram DC	C071367, C072146, C071361						C071368, C072146, C071761									
Engine Series	John Deere 6068 Series Power Tech E						John Deere 6068 Series Power Tech Plus									
Speed Interpolation	N/A															

Abbreviations: CW – Clockwise TRWA – Turbocharged with Raw Water Aftercooling N/A - Not Available L – Length W – Width H - Height

*Rotation viewed from Heat Exchanger / Front of engine

CERTIFIED POWER RATING

- Each engine is factory tested to verify power and performance.
- FM-UL power ratings are shown at specific speeds, Clarke engines can be applied at a single rated RPM setting ± 50 RPM.

ENGINE RATINGS BASELINES

- Engines are to be used for stationary emergency standby fire pump service only. Engines are to be tested in accordance with NFPA 25.
- Engines are rated at standard SAE conditions of 29.61 in. (752.1 mm) Hg barometer and 77°F (25°C) inlet air temperature [approximates 300 ft. (91.4 m) above sea level] by the testing laboratory (see SAE Standard J 1349).
- A deduction of 3 percent from engine horsepower rating at standard SAE conditions shall be made for diesel engines for each 1000 ft. (305 m) altitude above 300 ft. (91.4 m)
- A deduction of 1 percent from engine horsepower rating as corrected to standard SAE conditions shall be made for diesel engines for every 10°F (5.6°C) above 77°F (25°C) ambient temperature.

CLARKE®

FIRE PUMP ENGINES

MODELS

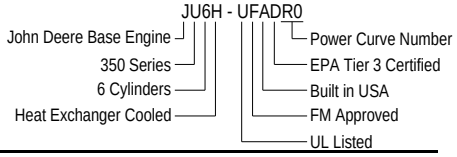
JU6H-UFADMG	JU6H-UFADP0	JU6H-UFADR0	JU6H-UFADT0
JU6H-UFAD58	JU6H-UFADP8	JU6H-UFADR8	JU6H-UFADW8
JU6H-UFADNG	JU6H-UFADQ0	JU6H-UFADS8	JU6H-UFADX8
JU6H-UFADN0	JU6H-UFAD88	JU6H-UFADS0	JU6H-UFAD98

ENGINE EQUIPMENT

EQUIPMENT	STANDARD	OPTIONAL
Air Cleaner	Direct Mounted, Washable, Indoor Service with Drip Shield	Disposable, Drip Proof, Indoor Service Outdoor Type, Single or Two Stage (Cyclonic)
Alarms	Overspeed Alarm & Shutdown, Low Oil Pressure, Low & High Coolant Temperature, Low Raw Water Flow, High Raw Water Temperature, Alternate ECM Warning, Fuel Injection Malfunction, ECM Warning and Failure with Automatic Switching	Low Coolant Level, Low Oil Level, Oil Filter Differential Pressure, Fuel Filter Differential Pressure, Air Filter Restriction
Alternator	12V-DC, 42 Amps with Poly-Vee Belt and Guard	24V-DC, 40 Amps with Poly-Vee Belt and Guard
Coupling	Bare Flywheel	UL Listed Driveshaft and Guard, JU6H-UFAD58/NG/ADMG/ADM8/K0/N0/Q0/R0-CDS30-S1; JU6H-UFADP8/P0/T0/88/R8/S8/S0/W8/X8/98- CDS50-SC at 1760/2100 RPM only
Electronic Control Module	12V-DC, Energized to Stop, Primary ECM always Powered on	24V-DC, Energized to Stop, Primary ECM always Powered on
Engine Heater	115V-AC, 1360 Watt	230V-AC, 1360 Watt
Exhaust Flex Connection	SS Flex, 150# ANSI Flanged Connection, 5" for JU6H-UFAD58/MG/NG/N0/P8/88; SS Flex, 150# ANSI Flanged Connection, 6" for JU6H-UFADP0/Q0/R0/S0/T0/R8/S8/W8/X8/98 (w/ orifice plate)	SS Flex, 150# ANSI Flanged Connection, 6" for JU6H-UFAD58/MG/NG/N0/P8/88; SS Flex, 150# ANSI Flanged Connection, 8" for JU6H-UFADP0/Q0/R0/S0/T0/R8/S8/W8/X8/98 (w/ orifice plate)
Exhaust Protection	Metal Guards on Manifolds and Turbocharger	
Flywheel Housing	SAE #3	
Flywheel Power Take Off	11.5" SAE Industrial Flywheel Connection	
Fuel Connections	Fire Resistant, Flexible, USA Coast Guard Approved, Supply and Return Lines	SS, Braided, cUL Listed, Supply and Return Lines
Fuel Filter	Primary Filter with Priming Pump	
Fuel Injection System	High Pressure Common Rail	
Governor, Speed	Dual Electronic Control Modules	
Heat Exchanger	Tube and Shell Type, 60 PSI (4 BAR), NPT(F) Connections – Sea Water Compatible	
Instrument Panel	Multimeter to Display English and Metric, Tachometer, Hourmeter, Water Temperature, Oil Pressure and One (1) Voltmeter with Toggle Switch, Front Opening	
Junction Box	Integral with Instrument Panel; For DC Wiring Interconnection to Engine Controller	
Lube Oil Cooler	Engine Water Cooled, Plate Type	
Lube Oil Filter	Full Flow with By-Pass Valve	
Lube Oil Pump	Gear Driven, Gear Type	
Manual Start Control	On Instrument Panel with Control Position Warning Light	
Overspeed Control	Electronic, Factory Set, Not Field Adjustable	
Raw Water Cooling Loop w/Alarms	Galvanized	Seawater, All 316SS, High Pressure
Raw Water Cooling Loop Solenoid Operation	Automatic from Fire Pump Controller and from Engine Instrument Panel (for Horizontal Fire Pump Applications)	Not Supplied (for Vertical Turbine Fire Pump Applications)
Run – Stop Control	On Instrument Panel with Control Position Warning Light	
Starters	Two (2) 12V-DC	Two (2) 24V-DC
Throttle Control	Adjustable Speed Control by Increase/Decrease Button, Tamper Proof in Instrument Panel	
Water Pump	Centrifugal Type, Poly-Vee Belt Drive with Guard	

Abbreviations: DC – Direct Current, AC – Alternating Current, SAE – Society of Automotive Engineers, NPT(F) – National Pipe Tapered Thread (Female), ANSI – American National Standards Institute, SS – Stainless Steel

MODEL NOMENCLATURE: (10 Digit Models)



CLARKE®

CLARKE Fire Protection Products, Inc.
100 Progress Place, Cincinnati, Ohio 45246
United States of America
Tel +1-513-475-FIRE(3473) Fax +1-513-771-8930
www.clarkefire.com

CLARKE UK, Ltd.
Grange Works, Lomond Rd., Coatbridge, ML5-2NN
United Kingdom
Tel +44-1236-429946 Fax +44-1236-427274
www.clarkefire.com

C133421 revR
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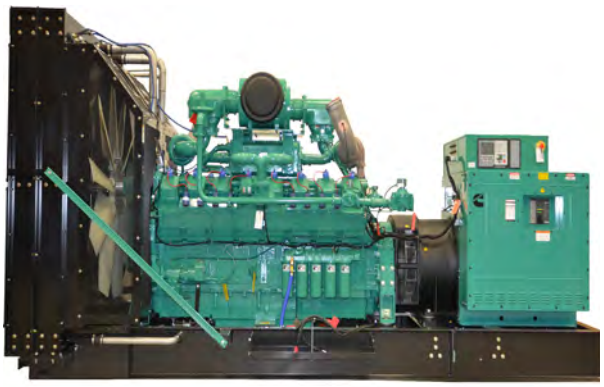
Specification sheet

Gaseous Fuel Generator Set

GTA50 Engine Series

600 kW - 750 kW 60 Hz



Description

The Cummins Inc. commercial Generator Set (GenSet) is a fully integrated power generation system providing optimum performance, reliability, and versatility for stationary standby and continuous power applications.

Features

Cummins Heavy-Duty Engine - Rugged 4-cycle industrial spark-ignited engine delivers reliable power, low emissions, and quick response to load changes.

Alternator - Several alternator sizes offer selectable motor-starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads, fault-clearing short-circuit capability, and class H insulation.

Control System - The PowerCommand® electronic control is standard equipment and provides total GenSet system integration, including automatic remote starting/stopping, precise voltage regulation, alarm and status message display, AmpSentry™ protective relay, output metering, and auto-shutdown at fault detection.

Warranty and Service - Backed by a comprehensive warranty and worldwide distributor network.

UL 2200 Certification - This Cummins GenSet has been designed, tested, and certified to UL 2200 standards (select models).

National Fire Protection Association (NFPA) - The GenSet accepts full rated load in a single step in accordance with NFPA 110 Type 10 (ten seconds) for Level 1 and Level 2 Emergency or Standby Power Supply Systems (EPSSs).

Model	Standby rating* 60Hz kW (kVa)	Emissions Compliance	Data sheet
C600N6	600 (750)	EPA SI NSPS Compliant Capable	FR 60103
C650N6	650 (813)	EPA SI NSPS Compliant Capable	FR 60104
C750N6	750 (937)	EPA SI NSPS Compliant Capable	FR 60244

* Tested at 0.8 power factor (PF) per NFPA 110.

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GenSet Specifications

Voltage Regulation, No Load to Full Load	±1%
Random Voltage Variation	±1% (Three-phase only.)
Frequency Regulation	Isochronous
Random Frequency Variation	±0.5%
Radio Frequency Interference	Optional PMG excitation operates in compliance with BS800 and VDE level G and N. Addition of RFI protection kit allows operation per MIL-STD-461 and VDE level K.

Engine Specifications

Base Engine	Cummins Model GTA50
Displacement	50.3 L (3069 in^3)
Overspeed Limit	2100 rpm
Regenerative Power	32 kW
Cylinder Block Configuration	Cast iron with replaceable wet cylinder liners
Cranking Current	1800 CCA at ambient temperature of 0 °C (32 °F)
Battery Charging Alternator	43 amps
Battery Type	8D (x4)
Starting Voltage	24-volt, negative ground
Standard Cooling System	See derates on Engine Data Sheet
Lube Oil Filter Types	Four spin-on canisters-combination full flow with bypass
Total System Back Pressure Allowed	51 mm Hg (2 in. Hg)
Catalyst Back Pressure	7.4 mm Hg (.29 in. Hg)
Silencer Back Pressure (Factory Enclosed Units Only)	13 mm Hg (.51 in. Hg)

Alternator Specifications

Design	Brushless, 4-pole, drip-proof revolving field
Stator	2/3 pitch
Rotor	Direct-coupled by flexible disc
Insulation System	Class H per NEMA MG1-1.65 or better
Standard Temperature Rise *	125 °C
Exciter Type	Permanent Magnet Generator (PMG)
Phase Rotation	A (U), B (V), C (W)
Alternator Cooling	Direct-drive centrifugal blower

* For UL 1004 ratings, refer to temperature rise at 120 °C or below, and ambient temperature up to 40 °C

Amp Rating at Full-load Voltage

	Full Load Voltage	120/240 (1 Ph)	120/208	127/220	139/240	220/380	240/416	254/440	277/480	347/600
C600N6	Amps	N/A	2082	1968	1804	1140	1041	984	902	722
C650N6	Amps	N/A	2255	2132	1955	1235	1128	1066	977	782
C750N6	Amps	N/A	2602	2460	2255	1424	1301	1230	1128	902

Fuel Consumption

		Rated Load Fuel Consumption in Standard Cubic Feet per Hour (CFH)			
Model	Fuel Type	1/4	1/2	3/4	Full
C600N6	NG	4037	5874	7708	9448
C650N6	NG	4095	6244	8146	10,144
C750N6	NG	4099	6559	8608	10,931

Fuel inlet pressure at GenSet connection: 381 to 508 mm WC (15 to 20 in. WC)

PowerCommand® 3.3 Control System

An integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing. Refer to document S-1570 for more detailed information on the control.

AmpSentry™ - Includes integral AmpSentry™ protection, which provides a full range of alternator protection functions that are matched to the alternator provided.

Power management - Control function provides battery monitoring and testing features and smart starting control system.

Advanced control methodology -Three-phase sensing, full wave rectified voltage regulation, with a PWM output for stable operation with all load types.

Communications interface - Control comes standard with PCCNet and Modbus® interface.

Regulation compliant - Prototype tested: UL, CSA and CE compliant.

Service - InPower™ PC-based service tool available for detailed diagnostics, setup, data logging and fault simulation.

Easily upgradeable - PowerCommand® controls are designed with common control interfaces.

Reliable design - The control system is designed for reliable operation in harsh environment.

Multi-language support - English, Spanish, French (standard); other languages (optional).

Operator Panel Features

Operator/Display Panel

- Displays paralleling breaker status.
- 320 x 240 pixels graphic LED backlight LCD.
- Provides direct control of the paralleling breaker.
- Alphanumeric display with pushbuttons.
- Auto, manual, start, stop, fault reset, and lamp test/panel lamp switches.
- LED lamps indicating GenSet running, remote start, not in auto, common shutdown, common warning, manual run mode, auto mode and stop.

Paralleling Control Functions

- First Start Sensor System selects first genset to close to bus.
- Phase Lock Loop Synchronizer with voltage matching.
- Sync check relay.
- Isochronous kW and kVar load sharing.
- Load govern control for utility paralleling.
- Extended Paralleling (baseload/peak shave) Mode.
- Digital power transfer control, for use with a breaker pair to provide open transition, closed transition, ramping closed transition, peaking and base load functions.

Other Control Features

- 150 watt anti-condensation heater.
- DC distribution panel.
- AC auxiliary distribution panel.

Alternator Data

- Line-to-neutral and line-to-line AC volts.
- Three-phase AC current.
- Frequency.
- kW, kVar, and power factor kVa (three-phase and total).
- Winding temperature (optional).
- Bearing temperature (optional).

Engine Data

- DC voltage and engine speed.
- Lube oil pressure and temperature.
- Coolant temperature.
- Comprehensive FAE data.

Other Display Data

- GenSet model data.
- Start attempts, starts, running hours, kW hours.
- Load profile (operating hours at % load in 5% increments).
- Fault history – up to 32 events.
- Data logging and fault simulation (requires InPower™).
- Air cleaner restriction indication.
- Exhaust temperature in each cylinder.

Standard Control Functions

Digital Governing

- Temperature dynamic governing.
- Integrated digital electronic isochronous governing.

Digital Voltage Regulation

- Configurable torque matching.
- 3-phase, 4 wire line-to-line sensing.
- Integrated digital electronic voltage regulator.

AmpSentry™ AC Protection

- AmpSentry™ protective relay.
- Over current and short circuit shutdown.
- Over current warning.
- Single and three-phase fault regulation.
- Low oil pressure warning and shutdown.
- High coolant temperature warning and shutdown.
- Low coolant level warning and shutdown.
- Low coolant temperature warning.
- Over and under voltage shutdown.
- Over and under frequency shutdown.
- Overload warning with alarm contact.
- Reverse power and reverse var shutdown.
- Field overload shutdown.
- Fuel-in-rupture-basin warning or shutdown.
- Full authority electronic engine protection.
- AMM arc flash provision

Engine Protection

- Cranking lockout; overspeed shutdown; and battleshort.
- Sensor failure indication.
- Low fuel level warning or shutdown.
- Fail to start (overcrank) and fail to crank shutdown.
- Full authority electronic engine protection.
- Battery voltage monitoring, protection, and testing.

Control Functions

- Data logging and cycle cranking.
- Load shed.
- Remote emergency stop.
- Time delay start and cooldown.
- Configurable inputs and outputs (20).
- Real time clock for fault and event time stamping.
- Exerciser clock and time of day start/stop.

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GenSet options and accessories

Engine

- 240/480 V, 4000 W coolant heaters (2)
- 240 V, 300 W lube oil heater

Alternator

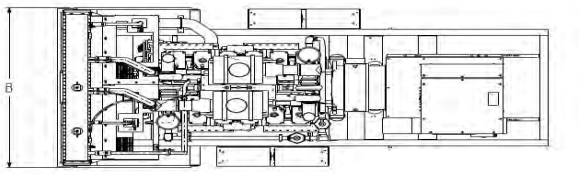
- 80 °C rise
- 105 °C rise

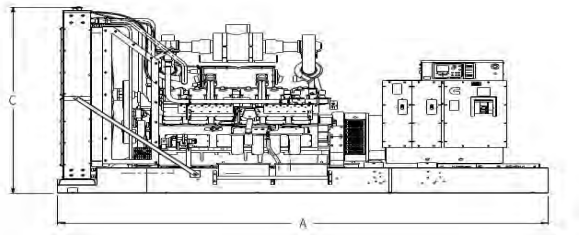
Exhaust System

- Catalyst addition or removal (model-specific)

Generator Set (model-specific)

- PowerCommand® Network Aux 101, 102 module
- Modbus® to BACnet™ Module
- Weather protective enclosure (F001) with silencer
- Level I and Level II enclosure w/silencer
- 2-year standby and 5-year basic power warranty





This outline drawing is for reference only.
Do not use for installation design.

	Dim “A” mm (in.)	Dim “B” mm (in.)	Dim “C” mm (in.)
All Models	5182 (204)	2286 (90)	2721 (107)

NOTE: Consult drawings for applicable weights. Contact the factory for additional information. See enclosure Specification Sheet for enclosure dimensions.

Codes and Standards

The Prototype Test Support (PTS) program verifies the performance integrity of the GenSet design. Products bearing the PTS symbol have been subjected to demanding tests in accordance with NFPA 110 to verify the design integrity and performance under both normal and abnormal operating conditions. These conditions include: short circuit, endurance, temperature rise, torsional vibration, and transient response.

Underwriters Laboratory (UL) is a world leader in product safety testing and certification. This GenSet is certified to UL2200 as open set, weather enclosure, and sound-attenuated enclosure configurations. The generator is certified to UL1004. The PowerCommand® Control System is certified to UL508.

CSA Group tests products under a formal process to ensure that they meet the safety and/or performance requirements of applicable standards. This GenSet is certified to: CSA 22.2 No. 100 Motors and Generators; CSA 22.2 No. 0.4-044 Bonding of Electrical Equipment; CSA 22.2 No. 14 Industrial Control Equipment; and CSA 22.2 No. 0 General Requirements - Canadian Electrical Code, Part II.

Engine is compliant-capable for Stationary Emergency U.S. applications and must be applied per EPA regulations.

This product has been manufactured under the controls established by a Bureau Veritas Certification approved management system that conforms with ISO 9001:2015.

Ratings Definitions

Emergency Standby Power (ESP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power is in accordance with ISO 3046, AS 2789, DIN 6271, and BS 5514.

Prime Power (PRP):
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271, and BS 5514.

Base Load (Continuous) Power (COP):
Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) is in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271, and BS 5514.

Warning: Backfeed to a utility system can cause electrocution and/or property damage. Do not connect GenSets to any building electrical system except through an approved device or after the building main disconnect is open. Neutral connection must be bonded in accordance with National Electrical Code.

Specifications are subject to change without notice.

Cummins Sales and Service
875 Lawrence Drive
DePere, Wisconsin 54115

www.power.cummins.com

Doc. A042J406 Rev. 1

UPDATE™ Version 5.8.1
Product Data: 2/15/2018 (Current)

4/12/2018 10:31:36 AM

Job Information

Selected By

Dyna-Tech Sales
55 Columbia Rd.
Branchburg, NJ 08876
dwysmuller@dynatechsales.net

David Wysmuller
Tel 908-541-1010

Cooling Tower Definition

Manufacturer	Marley	Fan Motor Speed	1800 rpm
Product	NC Steel	Required Fan Motor Output per cell *	92.9 BHp
Model	NC8414YAN3	Required Fan Motor Output total *	278.7 BHp
Cells	3	Fan Motor Capacity per cell	125.0 Hp
CTI Certified	Yes	Fan Motor Output per cell	125.0 BHp
Fan	12.00 ft, 7 Blades	Fan Motor Output total	375.0 BHp
Fan Speed	289 rpm, 10895 fpm	Air Flow per cell	354800 cfm
Fans per cell	1	Air Flow total	1064300 cfm
Fill Type	MX75	Static Lift	22.96 ft
		Distribution Head Loss	0.00 ft
		ASHRAE 90.1 Performance	39.0 gpm/Hp

Model Group Standard Low Sound (A)

* Required Fan Motor Output assumes VFD operation

Conditions

Tower Water Flow	7849 gpm	Air Density In	0.07094 lb/ft³
Hot Water Temperature	97.00 °F	Air Density Out	0.07103 lb/ft³
Range	14.00 °F	Humidity Ratio In	0.01712
Cold Water Temperature	83.00 °F	Humidity Ratio Out	0.03014
Approach	5.00 °F	Wet-Bulb Temp. Out	88.96 °F
Wet-Bulb Temperature	78.00 °F	Estimated Evaporation	115 gpm
Relative Humidity	50.0 %	Total Heat Rejection	54751000 Btu/h
Capacity	109.3 %		

- This selection satisfies your design conditions.

Weights & Dimensions

	Per Cell	Total
Shipping Weight	22100 lb	66300 lb
Heaviest Section	13000 lb	
Max Operating Weight	48400 lb	145100 lb
Width	22.42 ft	22.42 ft
Length	13.90 ft	42.28 ft
Height	22.60 ft	

Minimum Enclosure Clearance

Clearance required on air inlet sides of tower without altering performance. Assumes no air from below tower.

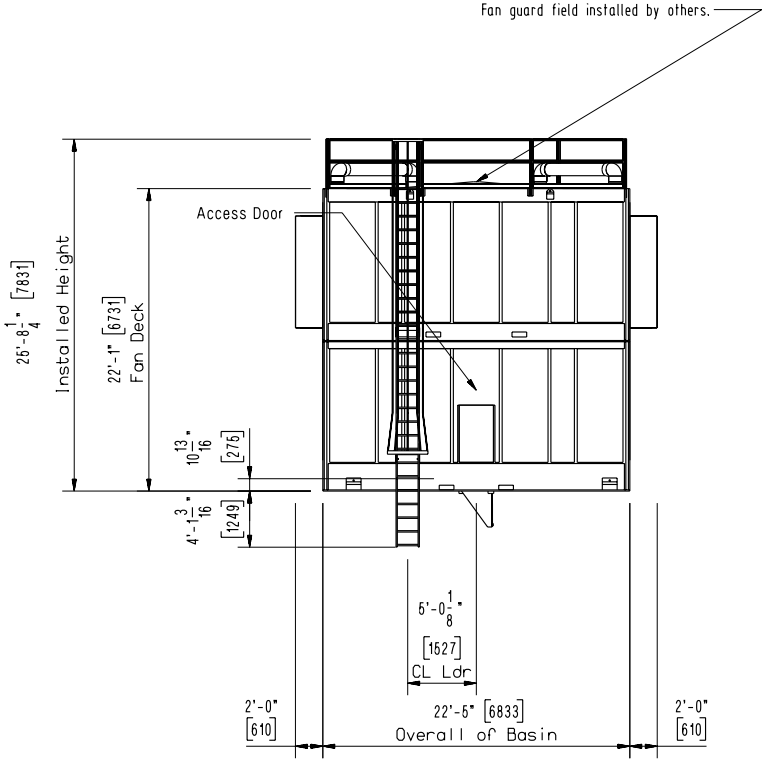
Solid Wall	14.62 ft
50 % Open Wall	9.45 ft

Weights and dimensions do not include options; refer to sales drawings. For CAD layouts refer to file 8414_ALN.dxf

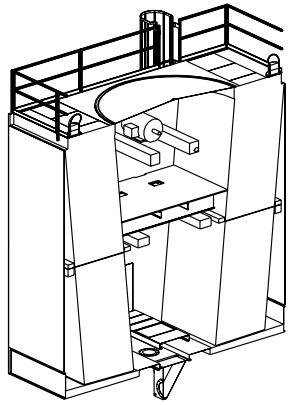
Cold Weather Operation

Heater Sizing (to prevent freezing in the collection basin during periods of shutdown)

Heater kW/Cell	30.0	24.0	18.0	15.0	12.0	9.0	7.5
Ambient Temperature °F	-18.82	-6.29	6.25	12.51	18.78	25.05	28.18



Cased Face C



Interior View

NOTES

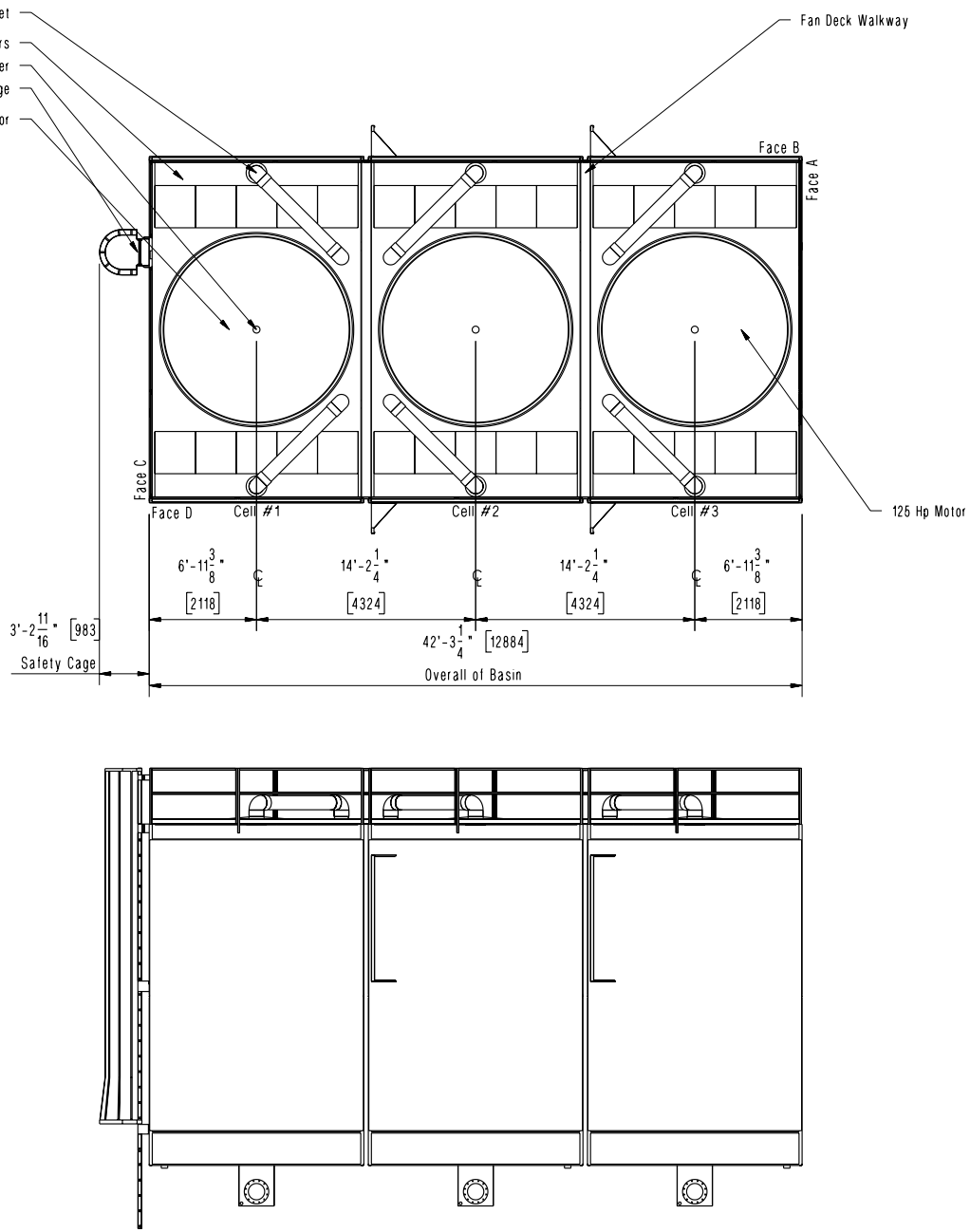
1. The fan motor must be locked out and inoperable before entering the tower. This warning has been placed on the access door.
2. The internal inlet piping, including flat face flange gaskets, which starts at the face of the inlet connection is provided by SPX CT. The piping external to the tower and its supports are provided by others. The external piping may not be supported from the tower.
3. The external inlet piping at the top of the tower is provided by SPX CT and installed in the field by others. This piping can be an obstacle to personnel on top of the tower. The installation detail drawings are included in the Literature Package shipped with the tower.
4. Multi-cell towers should include provisions to balance flow between cells.
5. The internal vertical riser will apply an additional vertical operating load of 1050 lb (476 kg) at the bottom inlet flange attachment to the external piping which is supported by others.
6. To ensure maximum thermal performance the cooling tower must be installed level and plumb. Both of the air inlet faces must have adequate air supply. If obstructions exist, consult your SPX CT representative.
7. Contact your SPX CT sales engineer for the required pump head for this inlet arrangement.
8. Hoisting clips are provided for ease of unloading and positioning. For overhead lifts or where additional safety precautions are prudent, add slings beneath the tower. Adequate space has been provided for removal of the shackles and the 5 1/4" (133 mm) long pins from the hoist clips between the cells of a multi-cell tower. If the pin used is longer than 5 1/4" (133 mm), the cell may be slid into it's final position by using come-alongs at the base of the unit, after removal of shackle pins. See Hoisting Details drawing.
9. Flanged connections conform to Class 125 ANSI B16.1 specification. The bolt holes straddle the centerlines.
10. Construction of the ladder and guardrail: The guardrail is fabricated from galvanized structural tubing. Top rail, middle rail and posts are 1 1/2" (38 mm) square tube 1/8" (3 mm) thick. Toeboards are 12 gauge heavy mill galvanized steel. The ladder is aluminum 3" (76 mm) x 1 1/8" (29 mm) I-beam side rails and 1 1/4" (32 mm) serrated rungs.
11. The ladder and guardrail are field installed by others. The tower is shop modified to accept this option. The clips and hardware are provided by SPX CT for the field installation. The installation detail drawings are included in the literature package shipped with the tower.
12. Ladder extensions are provided in nominal lengths of 5' [1524mm] and 11' [4572mm] only. Field modification by others is required for extensions of different lengths. Anchorage of the bottom of the ladder extension for proper stability is by others.
13. O.S.H.A. standards recommend the use of a Safety Cage when the length of a single ladder exceeds 20'-0" (6096 mm).
14. The Plenum Walkway consists of 11 gauge steel supports and 16 gauge steel walkway panels. The elevation of the Plenum Walkway is above the overflow water level of the collection basin. The distance from the top of the Plenum Walkway to the fan is 18'-4 7/8" (5610 mm).
15. The Interior Mechanical Equipment Platform consists of the Plenum Walkway plus an elevated platform for access to the mechanical equipment. A ladder is provided from the Plenum Walkway to the elevated platform along with a handrail system for the elevated platform.
16. The distance from the elevated platform to the fan exceeds 7'-0 13/16" (2154 mm).
17. O.S.H.A. standards recommend the use of an Access Door Platform if the door is 4'-0" (1219 mm) or higher above grade.
18. Single inlet options (side or bottom inlet) - This piping can be an obstacle to personnel on top of the tower.
19. The tower assembly tolerance applicable to all dimensions is + or - 1/8" (3 mm). Consult suppliers of supporting structure for construction tolerances.
20. The units of measure are in IP (SI) units unless otherwise noted.

NC8414YAN3BGF - Schematic Cased Elevation and Notes
REVISED 4/5 B Braun Expansion - 2018
United States

MARLEY

ORDER 0

DRAWN BY	CHECKED	REV BY	REV CHK	DATE	APPROVED	DRAWING NUMBER	REV.
DAVID WYSMULLER_180405_120632387 V1	QTC			04/05/18	SYS	DW666955M	



NOTES

1. The tower assembly tolerance applicable to all dimensions is + or - 1/8" (3 mm). Consult suppliers of supporting structure for construction tolerances.
2. The units of measure are in IP (SI) units unless otherwise noted.
3. See Schematic Cased Elevation and Notes drawing for additional notes.

NC8414YAN3BGF - Schematic Plan and Louver Elevation
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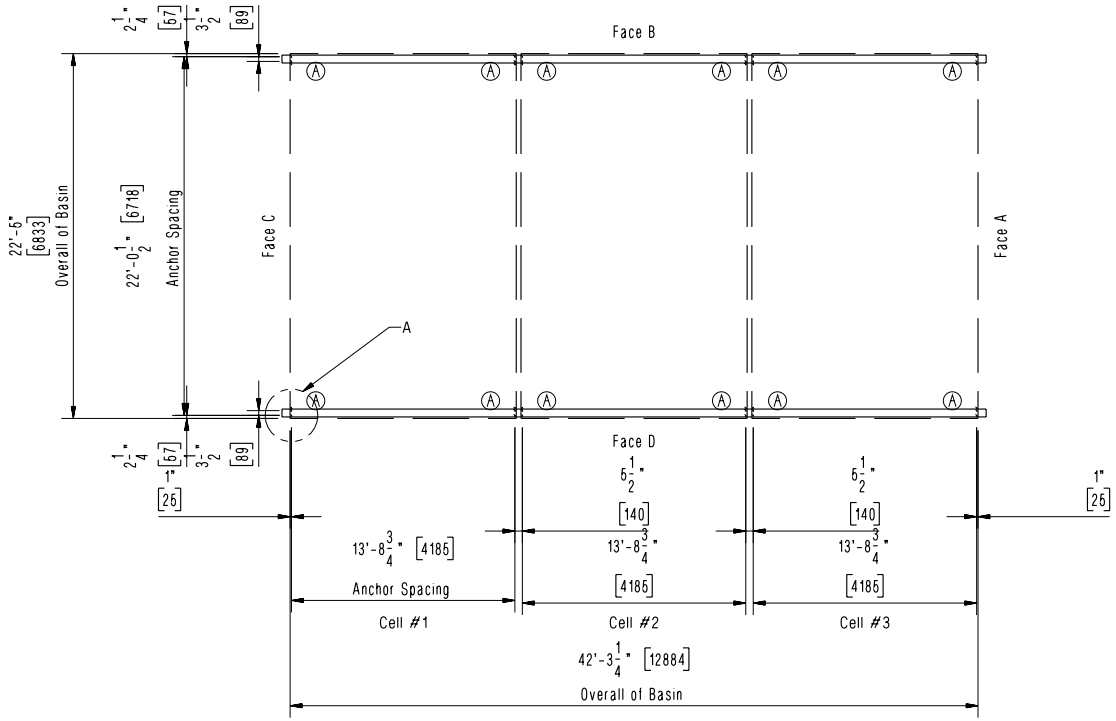
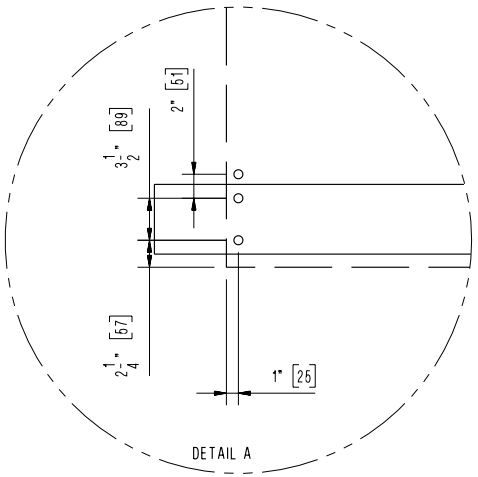
DAVID WYSMULLER_180405_120632387 V1	QTC			04/05/18	SYS	DW666955S	

Shipping Weight		Design Operating Loads			Wind Load		Seismic Load	
per Tower	Heaviest Lift	per Tower	per Cell	at A	Vert. Reaction at A	Horiz. Reaction at A	Vert. Reaction at A	Horiz. Reaction at A
80172 lb (36365 kg)	15288 lb (6935 kg)	158940 lb (72094 kg)	52980 lb (24031 kg)	14581 lb (6614 kg)	199.07 x P lb (18.49 x P kgf)	123.76 x P lb (11.5 x P kgf)	20198 x G lb (9162 x G kgf)	12143 x G lb (5508 x G kgf)

(8) 3/4" ASTM A307 or M20 Grade 4.6 anchor bolts are required per cell. These anchor bolts are capable of resisting 63 psf (3016 N/m²) wind load or 0.8 G seismic load applied to the tower. Wind and Seismic capacities are un-factored loads as determined by ASCE7-10. Determination of the site specific design wind and seismic loads are by others.





The first anchor bolt hole is the closest to the end of the cold water basin flange. The second anchor bolt should use the hole that matches the gauge of the beam.

NOTES

1. SUPPORTING STEEL: The supporting steel is to be designed, constructed and furnished by the customer. It shall include customer supplied anchor bolts to suit the general dimensions of this drawing and of the Outlet Piping Plan drawing. The top surface of the supporting steel must be framed flush and level. The maximum beam deflection shall be limited to 1/360 of span, not to exceed 1/2" (13 mm) at the anchor bolts in order to assure that the cooling tower is level and plumb.
2. DESIGN OPERATING LOADS: The design operating loads shown in the above table are based upon the volume of water in the collection basin at shutdown. The shutdown water level has been sized to accommodate the maximum allowable flow rates. The design loads are shown for your use as a quick reference. The actual operating load is variable, and dependent upon the design flow rate per cell. Design loads are all based upon the recommended operating water level. Operating levels in excess of that recommended will result in loads exceeding the values stated. Consult a SPX CT representative for greater detail on this or any other subject.
3. WIND & SEISMIC LOADS: Reactions shown are the result of the wind/seismic load being applied perpendicular to the face of the tower structure. Loads are additive to the operating loads. Wind reactions can be calculated by multiplying by P, which is the wind pressure in psf for Imperial units and kgf/m² for metric units. Seismic reactions can be calculated by design G.
4. SHIPPING WEIGHTS AND MAXIMUM OPERATING LOADS: Values shown in table include the optional equipment weights.
5. NON-STANDARD ANCHORAGE LOCATION: The anchor bolt dimension shown can be varied upon request. Consult a SPX CT representative for specifics and to ensure that the appropriate modifications are added to the structure.
6. PIER SUPPORTS: The tower may be supported from piers at each anchor bolt location as an alternate. A pier should be at least 6" (152 mm) x 6" (152 mm).
7. VIBRATION ISOLATORS: The towers may be supported on vibration isolators. The isolators must be placed UNDER the supporting steel beams and not between the support beams and the tower.
8. The tower assembly tolerance applicable to all dimensions is + or - 1/8" (3 mm). Consult suppliers of supporting structure for construction tolerances.
9. The units of measure are in IP (SI) units unless otherwise noted.

NC8414YAN3BGF - Supporting Steel Plan and Details
REVISED 4/5 B Braun Expansion - 2018
United States

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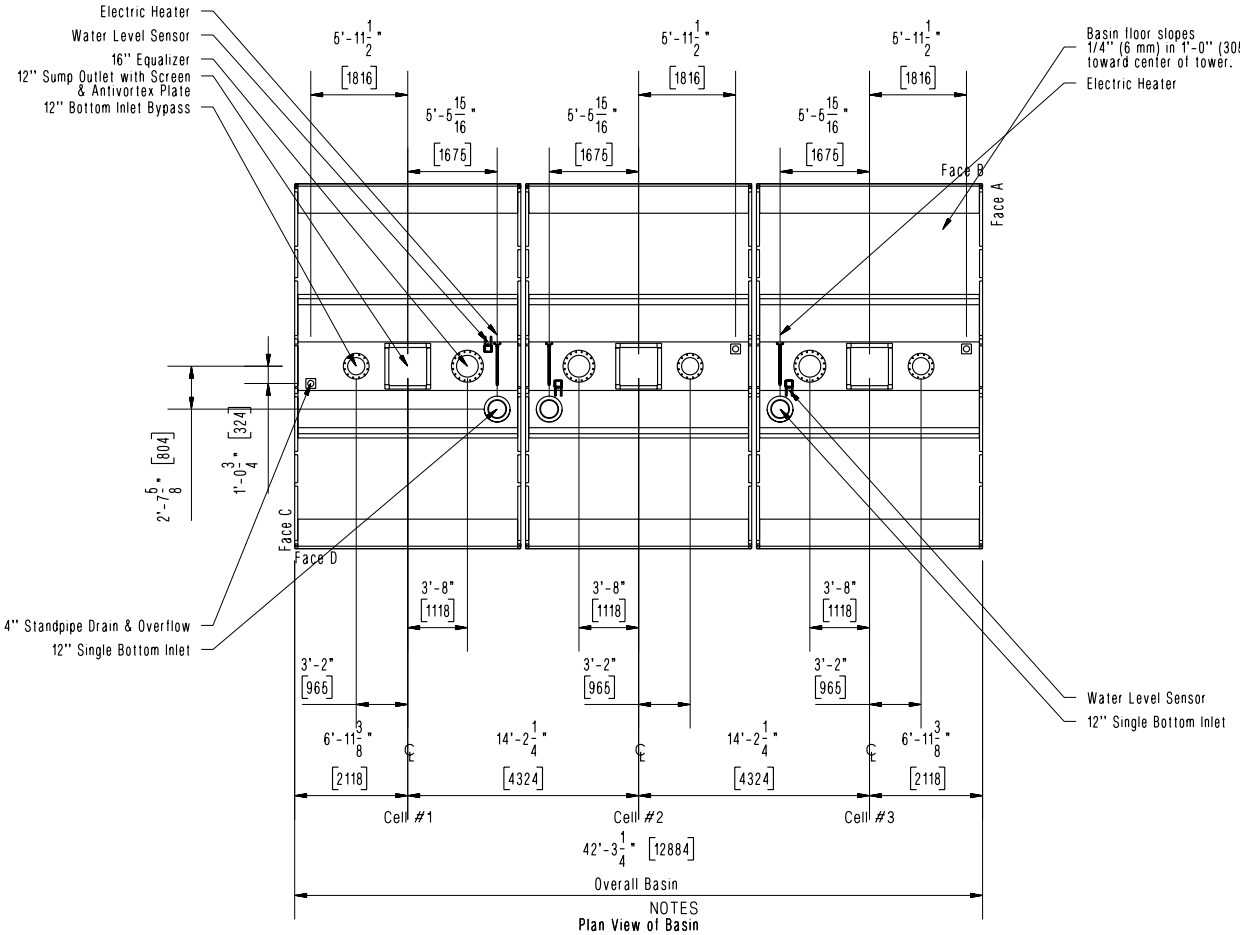

Plan View of Basin

NOTES

1. Flanged connections conform to Class 125 ANSI B16.1 specification. The bolt holes straddle the centerlines.
2. All piping supports are by others. Do NOT support outlet piping from the tower.
3. The collection basin piping accessories shown on this drawing are furnished by SPX CT. This includes a full faced gasket. Flat faced flange, fasteners and seal washers attachment to the outlet and equalizer are supplied by others. The use of a flange other than a flat faced flange will damage the sump or the collection basin floor.
4. The sump is shipped inside the tower and is to be field installed by others.
5. The diameter of the bottom outlet equalizer option is based on a SPX CT standard using 20 percent of a tower's outlet design flow and a head differential between two adjacent towers of 1" (25 mm).
6. The standpipe overflow is to be field installed by others.
7. The design operating loads shown in the table on the Grillage Details drawing are based upon the volume of water in the collection basin at shutdown. The shutdown water level has been sized to accommodate the maximum allowable flow rates. The actual operating load is variable, and is dependent upon the design flow rate per cell. Design loads are all based upon the recommended operating water level. Operating levels in excess of that recommended can result in loads exceeding values stated. Consult a SPX CT representative for greater detail on this or any other subject.
8. The accessories for inlet piping bypass option are provided by SPX CT. Piping supports are by others and are not to be supported by the tower.
9. The electric water level probes are cut to length and assembled with the probe holder, stilling chamber, and support in the factory. This sub-assembly is field installed by others to the factory installed support clip.
10. The electric water level relay box and it's wiring is field installed by others. Customer's installation should meet the requirements of the latest National Electrical Code as well as applicable local codes.
11. All standard electric water level control components are UL or CSA listed.
12. An electric water level with a single relay system is one solid state relay. A multi-relay system is two or more solid state relays connected to a terminal strip.
13. The tower assembly tolerance applicable to all dimensions is + or - 1/8" (3 mm). Consult suppliers of supporting structure for construction tolerances.
14. The units of measure are in IP (SI) units unless otherwise noted.

NC8414YAN3BGF - Piping Plan
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United States

MARLEY

ORDER 0

DRAWN BY	CHECKED	REV BY	REV CHK	DATE	APPROVED	DRAWING NUMBER	REV.
DAVID WYSMULLER_180405_120632387 V1	QTC			04/05/18	SYS	DW666955P	

APPENDIX D – MUNICIPAL NOTIFICATION LETTERS

B|BRAUN
SHARING EXPERTISE

July 26, 2018

CERTIFIED MAIL

Amy L. Zanelli – District 3
Lehigh County Board of Commissioners
17 South 7th Street
Allentown, PA 18101-2400

RE: PADEP Required County Notification – Plan Approval Application Submitted

Dear Ms. Zanelli:

Pursuant to the Commonwealth of Pennsylvania's Administrative Code (Section 1905-A), Cooperation with Municipalities, B. Braun Medical, Inc. (B. Braun) hereby notifies Lehigh County of its submittal of a Plan Approval Application (PAA) to the Pennsylvania Department of Environmental Protection (PADEP). B. Braun owns and operates a surgical and medical instrument apparatus manufacturing facility at 901 Marcon Blvd. Allentown, PA (Facility). B. Braun is submitting a PAA to seek air quality permitting approval for a proposed Facility expansion.

PADEP will accept comments on the PAA during a 30-day period, which begins upon your receipt of this notification. A copy of the PAA is available for your review at PADEP's Northeast Regional Office in Wilkes-Barre, Pennsylvania. Any comments concerning the PAA should be transmitted to PADEP within 30 days of your receipt of this letter. If you have any questions or concerns regarding the above information, please contact me at (610) 596-2930.

Sincerely,
B. Braun Medical, Inc.

Nate Bonar
Associate Director, Strategic Capital Projects

USPS Tracking®

FAQs > (http://faq.usps.com/?articleId=220900)

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30 JULY 2018 ⓘ

by **8:00pm** ⓘ

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B|BRAUN
SHARING EXPERTISE

July 26, 2018

CERTIFIED MAIL

Bruce Paulus, Chairman of Council
Hanover Township
2202 Grove Road
Allentown, PA 18109

RE: PADEP Required Municipal Notification – Plan Approval Application Submitted

Dear Mr. Paulus:

Pursuant to the Commonwealth of Pennsylvania's Administrative Code (Section 1905-A), Cooperation with Municipalities, B. Braun Medical, Inc. (B. Braun) hereby notifies Hanover Township of its submittal of a Plan Approval Application (PAA) to the Pennsylvania Department of Environmental Protection (PADEP). B. Braun owns and operates a surgical and medical instrument apparatus manufacturing facility at 901 Marcon Blvd. Allentown, PA (Facility). B. Braun is submitting a PAA to seek air quality permitting approval for a proposed Facility expansion.

PADEP will accept comments on the PAA during a 30-day period, which begins upon your receipt of this notification. A copy of the PAA is available for your review at PADEP's Northeast Regional Office in Wilkes-Barre, Pennsylvania. Any comments concerning the PAA should be transmitted to PADEP within 30 days of your receipt of this letter. If you have any questions or concerns regarding the above information, please contact me at (610) 596-2930.

Sincerely,
B. Braun Medical, Inc.

Nate Bonar
Associate Director, Strategic Capital Projects

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Expected Delivery by

MONDAY

30 JULY 2018 ⓘ

by **8:00pm** ⓘ

Delivered

July 30, 2018 at 1:07 pm
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